

FLIGHT

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AIRSHIPS

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" FLIGHT " PHOTOGRAPHS.

To those desirous of obtaining copies of "Flight" Photographs, these can be supplied, enlarged or otherwise, upon application to Photo. Department, 36, Great Queen Street, W.C.2

For Sizes and Prices, see Ad-ert. on page xx.

DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list:—

1927

Aug. 10-12 Navy v. R.A.F. Cricket Match.

Aug. 12-21 International Meeting, Zurich

Aug. 20—

Sept. 2 International Aero Exhibition, Copenhagen.

Sept. 5 Gordon-Bennett Balloon Race, Detroit, U.S.A.

Sept. 25 Schneider Trophy Race at Venice.

Oct. 20 Aero Golfing Soc. (Cillon Cup), Walton Heath.

Oct. 31 Guggenheim Safe-Aircraft Competition Closes

EDITORIAL COMMENT.



At long last the veil of secrecy has been lifted which has for a year or so surrounded the machines with which Great Britain is to challenge Italy's possession of the Jacques Schneider seaplane trophy, or as it is generally, although erroneously called, the Schneider Cup. This event, the most important in the world of its class, is scheduled to take place at Venice on Sunday, September 25, and will be contested by the present holder, Italy, the United States and Great Britain. At the moment nothing very definite is known concerning the Italian defenders of the trophy, but it may be taken for granted that the firm which won the trophy last year, the Macchi company, will be represented. The United States, at one time expected to enter Navy machines and possibly an Army entry, finally decided to refrain from entering any service machine, but in order that America, twice holder of the Schneider trophy, should be represented, the necessary funds were raised privately and a machine designed for the race. Again no particulars are available, but rumour has it that the American challenger is likely to be a formidable opponent.

Concerning the British entries, the photographs published in this week's issue of FLIGHT give a very good idea of two of the three types, The Gloster IV and the supermarine S.5. The third type of machine produced for the race, the "Crusader," will, we gather, be "released" later. We have pointed out in FLIGHT from time to time the reasons why, even after 25 years or more of flying, the original fight between monoplane and biplane is still undecided, and that while in the earlier days of aviation the advocates of one type or the other based their claims to superiority mainly on aerodynamic grounds, in modern times it is becoming clear that, generally speaking, there is little to choose between the two types on that score, considerations other than aerodynamic usually turning the scales in favour of one or the other, according to the purpose for which the machine is designed, or the personal preferences and

experiences of the designer. Thus it is not surprising that even in such ultra fast machines as the Schneider Trophy seaplanes we see both types represented.

The Gloster Aircraft Company has pinned its faith on the biplane ever since, shortly after the war, they brought out the famous "Bamel" racer designed for and winner of the Aerial Derby. Since that time Mr. H. P. Folland, the firm's chief designer and engineer, has produced a long series of racers, landplanes and seaplanes, and all have been of the biplane type. That Mr. Folland should still retain his faith in this type is therefore only natural, as is the fact that this year's machine, the Gloster IV, has the appearance of being the logical development of the series of machines of which this is the high-water mark, so to speak. The "cleaning up" process has been carried to a very considerable degree of perfection, and it is difficult to see any way in which further resistance could be saved. Outward appearances are somewhat deceptive, and the history of flying is not without examples of machines with an appearance of good streamlining which were nevertheless slower than others seemingly less "clean," but in which the formation of the fuselage, the shape and location of protuberances, and so on, were more favourable to the somewhat erratic air flow in the slip stream from the propeller. In the Gloster IV one may be assured that all these things have been considered and tested, and that little more can be done along these lines. A biplane is often likely to appear less "clean" than a monoplane, but modern aerodynamic theory indicates that this appearance may be deceptive, and that the profile drag of the monoplane, which usually has a thicker wing section, may be about the same as that of a biplane with thinner sections, but with more external bracing. As regards induced drag, this is smaller in the biplane than in the monoplane, for a given wing span, but as induced drag is a very small percentage indeed of the total at small lift coefficients, or in other words at high speeds, the effect of induced drag in a Schneider Trophy racer is probably almost negligible. Thus, as regards resistance the monoplane and the biplane are probably about equal. As a general rule, the biplane wing structure is somewhat lighter than that of the monoplane, and perhaps it is rather easier to provide ample torsional stiffness in a biplane cellule. Doubtless Mr. Folland was influenced by considerations such as these when he designed the Gloster IV. That the machine is very fast there can be no doubt, and the Gloster company deserves success for the persistence with which it has kept alive the breed of racers in this country during the years following the war.

The Supermarine S.5 is one of the most "eyeable" machines one could imagine. Its diminutive size, the almost incredibly small fuselage, and the general reduction in frontal area, carried to its utmost extent, lends an impression of speed, which is more than borne out when the machine is seen in flight. Although it sounds like a "tall" yarn, it is actually true that it "leaves the sound behind." That is to say, if one sees the machine flying at some distance,

the sound of the engine appears to come from a point some way behind the machine.

Some months ago we referred in these columns to the fact that there was considerable similarity between last year's Macchi racer and the Supermarine S.5, and pointed out at the time that this was in no way to be taken as an indication that Mr. Mitchell, chief designer and engineer of the Supermarine Aviation Works, had copied the Macchi. Apparently, what happened was that the Macchi designer and Mr. Mitchell both took the Supermarine S.4 as a good starting point, and whereas the Macchi was finished in time for, and won, last year's race, the S.5 has but recently been completed. Thus, there can be no possible question of "copying." The S.5 appears smaller even than last year's Macchi, but then it is to be presumed that the Italian designers have not been idle either, and have added a good many miles to last year's speed. We are naturally not permitted to quote performance figures, but the British challengers can at any rate be stated to have reached speeds such that the race will certainly not be a walk-over for the other competitors.

The "Crusader," entered by Col. Bristow and built to the designs of Mr. Carter, late chief designer to the Hawker Engineering Company, is a monoplane, but differs from the other two machines in that it is fitted with a Bristol radial air-cooled engine, the "Mercury." There are those who hold that the head resistance of the radial is too high for really fast machines, but Mr. Carter has succeeded in producing a machine which is certainly very fast, although possibly it may not be quite as fast as the Gloster IV and Supermarine S.5. The new Bristol engine is of much smaller diameter than the well-known series VI, and the weight-power ratio is almost ridiculously small, a fact which will go far towards making up for any disability from which the radial engine may suffer on the score of resistance. We are informed that the "Crusader" is a particularly nice machine to fly. One pilot has expressed it as the sort of machine one would like to use for pleasure flying if it were not for the cost.

The Napier racing engine fitted in the Gloster IV and S.5 is a specialised development of the famous "Lion," one of the most popular water-cooled engines in the world. It has been very intensively tested, both on the bench and in the air, and in spite of its low weight per horse-power it has proved particularly reliable and smooth running. Owing to a rearrangement of accessories the three-cylinder banks are particularly free from excrescences, and thus the task of fairing the engine into the fuselage has been greatly facilitated. From our photographs it will be seen how successfully this has been accomplished.

Altogether, there is cause for satisfaction with this year's British Schneider Trophy racers, and one very important factor in the equation of success is that the pilots will have had this year a reasonable amount of practice on the machines. Thus, there is every reason to believe that British prestige will be worthily upheld at Venice on September 25.

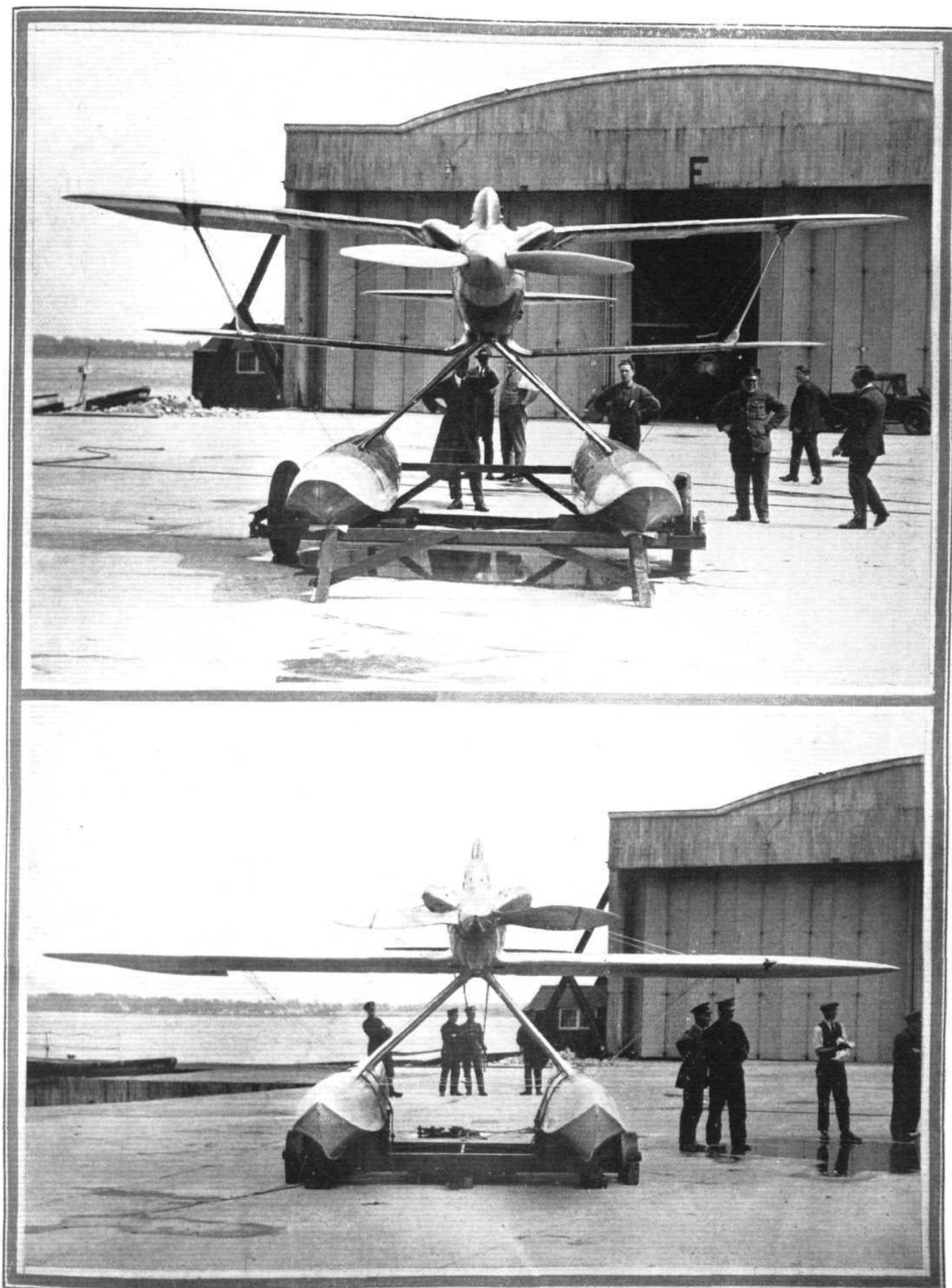
India's Aero Club

FOR the purpose of promoting an aero club in India Sir Victor Sassoon left for Simla, on August 5, with Squadron-Leader T. S. Impey. The club's headquarters will be at Delhi. Other clubs already being organised are at Calcutta, Karachi, and Bombay.

Another Canadian Hitch

THE second pilot selected for the proposed Canadian flight across the Atlantic, Mr. J. D. Vance, has withdrawn through certain disagreements with the contract offered him. A Montreal pilot, Mr. E. F. Peacock, has offered to fill the vacant position, asking merely for his expenses.

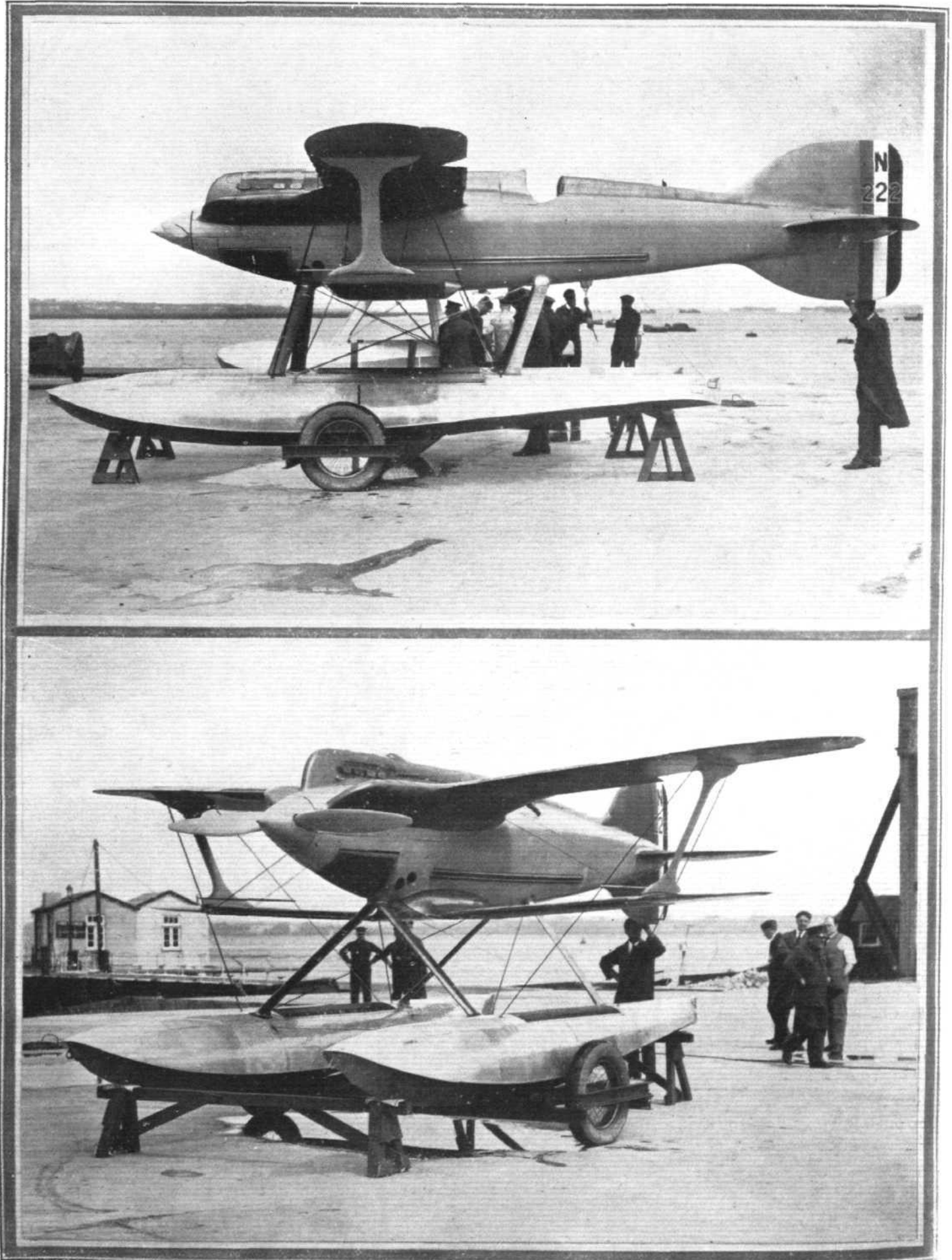
OUR SCHNEIDER CHALLENGERS



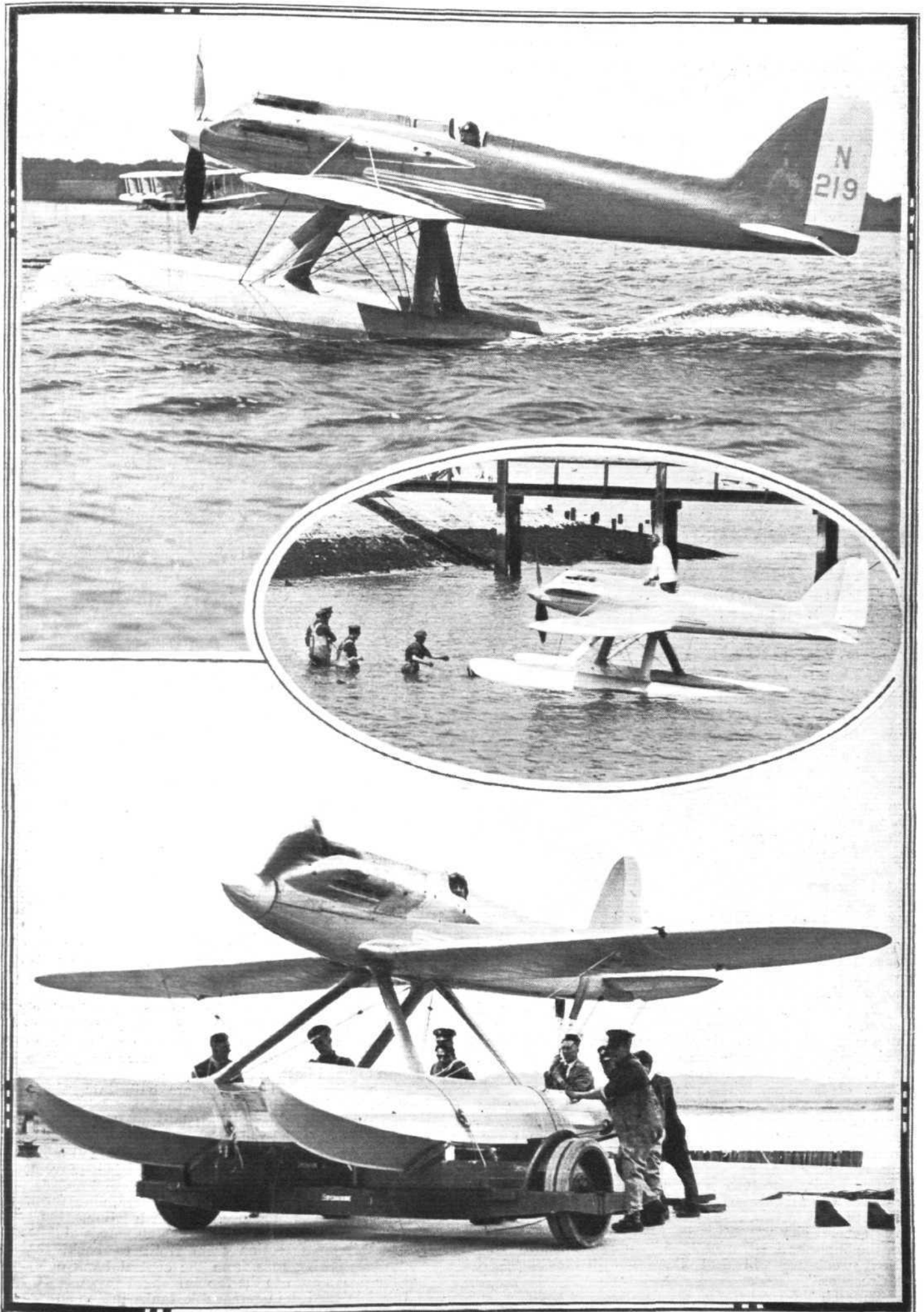
TWO OF THE BRITISH CHALLENGERS FOR THE SCHNEIDER TROPHY CONTEST: These front views of the Gloster-Napier IV biplane (top) and the Supermarine-Napier "S-5," give an excellent idea of their clean lines.

[" FLIGHT " Photographs]

A BRITISH SCHNEIDER CHALLENGER



THE BIPLANE CHALLENGER: Two views of the Closter-Napier IV. Note the exceptionally neat fairing of the "Lion" engine which merges into the fuselage and wings. [" FLIGHT Photographs]



THE MONOPLANE CHALLENGER: Three views of the Supermarine-Napier "S-5," which is an improved development of the 1925 "S-4."

THE 1927 SCHNEIDER TROPHY CONTEST

Some Notes on Two of the British Challengers

THIS year's contest for the Jacques Schneider Cup, which takes place at Venice on September 25, is likely to be an exceptionally interesting one, not only as regards the high speeds that may be expected from the competing machines, but also as regards certain general aspects of this classic event.

For instance, Great Britain is to be represented by three entries, and these, for the first time in the history of British aviation, will be Service machines, piloted by Service pilots. Previously the British entries have been purely "civil," although other countries entered under the auspices of their Governments—America, it will be remembered, entered pilots and machines from the Army and Naval Air Services, whilst Italy last year won the contest with the Macchi, built for the Italian Royal Air Force.

Thus, this year's race will be, practically speaking, an aerial contest between international Governments! The British Service team will be under the command of Air Vice-Marshal F. R. Scarlett, C.B., D.S.O., Air Officer Commanding Coastal Area, R.A.F., while Britain will further be represented by Lieut.-Col. Mervyn O'Gorman, C.B., and Lieut.-Comdr. H. E. Perrin (representing the Royal Aero Club) and by Maj. J. S. Buchanan, of the Air Ministry.

First and foremost, we wish to state that we were very favourably impressed by what we saw. Both machines showed very considerable progress since the 1925 Schneider 'buses, and left upon us a very optimistic impression indeed. Their appearance, as the reader may judge from our illustrations, is not only pleasing to the artistic eye, but also satisfies the technical eye—a combination which, we firmly believe, means success.

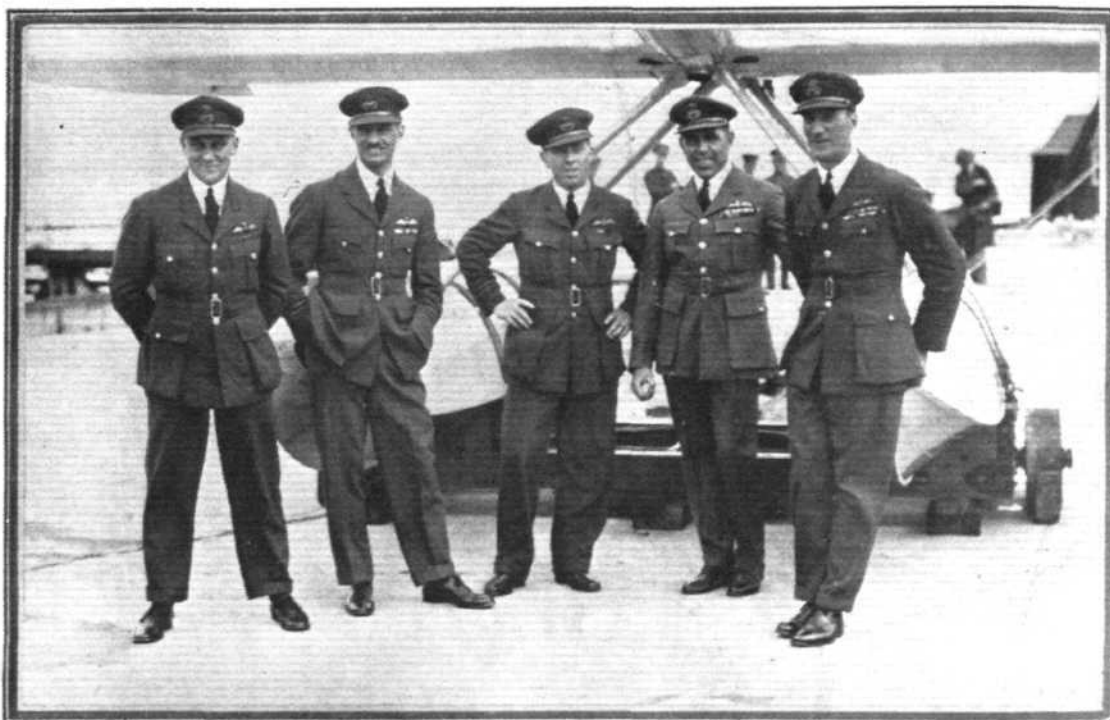
The Gloster-Napier IV

In the Gloster-Napier IV we have the latest development of a successful series of racing biplanes—Gloster "Bamel," winner of 1921 Aerial Derby (163 m.p.h.) and holder of British speed record of 196.6 m.p.h.; Gloster I, winner of 1922 Aerial Derby (180 m.p.h.) and holder of British speed record of 212.2 m.p.h.; Gloster II, winner of 1923 Aerial Derby (192.4 m.p.h.); Gloster III seaplane, second in 1925 Schneider Trophy contest (200 m.p.h.). In each case the engine was the Napier "Lion."

The Gloster-Napier IV shows considerable advance in design on the previous models, although it retains the family resemblance. It is a single-bay biplane, with top and bottom planes attached to the fuselage, the top plane being slightly larger than—or perhaps we should say, not quite so small

The Service Schneider Team:
From right to left:—Sq.-Ldr. L. H. Slatter, O.B.E., D.S.C., D.F.C.; Flt.-Lieuts. S. M. Kinkead, D.S.O., D.S.C., D.F.C.; S. N. Webster, A.F.C.; O. E. Worsley, and F./O. H. M. Schofield.

[FLIGHT "Photo.]



These, together with representatives of the aircraft and engine firms concerned, will form an advisory committee working under Air Vice-Marshal Scarlett, with the common object of bringing back the Cup to this country.

Regarding the British challenging machines, seven high-speed machines—six of which will go to Venice—have been designed and built, to Air Ministry order, under the general direction of the Directorate of Technical Development, by the following aircraft firms:—Supermarine Aviation Works, Ltd., of Southampton—three Supermarine-Napier "S-5" monoplanes; Gloster Aviation Co., Ltd., of Cheltenham—two Gloster-Napier IV biplanes; and Short Bros., Ltd., of Rochester—one Short-Bristol "Crusader." From these six machines three will be selected after final tests have been made at Venice.

For obvious reasons we are unable to give a detailed description of these machines, and all we can do at the moment is to present in this issue of FLIGHT just a few brief notes on the general characteristics, together with some illustrations, of the Supermarine-Napier "S-5" and the Gloster-Napier IV. Next week we will deal likewise with the Short-Bristol "Crusader."

Through the courtesy of the Air Ministry and the Supermarine, Gloster and Napier firms, we were able on Tuesday to inspect the two former machines, and are therefore able to give our readers the following particulars, which, if incomplete, we hope may prove interesting.

as—the lower one. It will be noted that the roots of the lower wings curve up into the fuselage, while the roots of the top wings curve down, and merge neatly into the outer engine-cylinder banks.

The wings are of the multi-spar type covered entirely with laminated spruce. The interplane struts, which are of the I type, are built up of dural forgings so as to reduce frontal area. Wing radiators, of special Gloster design, are fitted to both top and bottom planes.

The cantilever tail surfaces are built integral with the fuselage, and it will be observed that vertical fins are fitted both above and below the fuselage. All the controls are internal, elevator and rudder controls being provided with a variable device giving a ratio of 2 to 3 for small movements, grading off to a ratio of 3 to 2 for the last movements of controls.

The fuselage, of extremely fine streamline form, is of laminated spruce monocoque construction, the engine mounting being of weldless steel tubing. It is of "head and shoulders" cross section from front to back, that is a continuous fairing runs from the central bank of cylinders and the pilot's head to the top fin.

Petrol is carried in removable tanks in the fuselage, the oil tank and cooler being housed under the engine and forming part of the fairing. Water is carried in a long header tank, which also serves as a gravity petrol tank, forming the fairing between the centre cylinder block and the wind-screen.

Twin floats of special Gloster design and construction, of duralumin, are employed, and are connected to the fuselage by two widely spaced pairs of V struts. Special care has been taken in their design to obtain a good streamline shape without affecting their qualities on the water.

The tractor airscrew is also of Gloster design and construction, and is of the detachable blade type, the blades being machined to their correct pitch and contour from a solid duralumin forging on a special machine—no twisting of the blades being required.

The Supermarine-Napier S.5

The Schneider Trophy challenger produced by the Supermarine Aviation Works, Ltd., of Southampton—the Supermarine-Napier "S.5"—undoubtedly looks as if it meant to win back the Trophy, as may be gathered from the accompanying illustrations. But what is more important, tests have demonstrated that we have something more than looks to count upon. Mr. R. J. Mitchell, Chief Engineer to the Supermarine firm is responsible for the design of the "S.5" (we understand three of these machines have been constructed), whilst thanks are also due to the very valuable research work and co-operation of the Technical Officers of the Air Ministry, the Royal Aircraft Establishment at Farnborough, and the National Physical Laboratory at Teddington, that have been rendered in connection with its design and construction.

The "S.5" is a low-wing twin-float mono-seaplane developed from the "S.4"—to which it is very similar in general appearance—which took part in the 1925 contest and also won the world's speed record for seaplanes; incidentally, the "S.4" still holds the British speed record for both land and seaplanes.

It may be of interest to note in passing that these machines were the first mono-seaplanes (float) to be used in the Schneider contests since the early days—the Italian Macchi being produced after the "S.4" made its debut.

As we mentioned before we are unable to describe the "S.5" in detail, and can only refer to it in a general sort of way. It has, however, a number of very novel features which we give herewith, and these, together with our illustrations should provide our readers with some idea, at any rate, of its characteristics.

All the fuel is carried in the starboard float, the fuel tank being constructed as a section of the float. The effect of this is partially to balance the engine torque and thereby improve the flying qualities of the machine. The fuel is carried up to the engine by means of an engine-driven pump.

The wing surface radiators are an entirely new development and are a definite advance on anything previously used. They cool the engine without adding any resistance whatsoever to the machine, having a perfectly flat outer surface.

The wing is built of wood and is covered with special laminated wood underneath the radiators. The fin, to which is hinged the rudder, is built integral with the fuselage, and the tail plane is also neatly faired into the latter.

The fuselage is constructed entirely in metal, the skin taking practically all the stresses. The engine mounting consists of a cantilevered extension to the fuselage, the skin of the mounting taking all engine loads.

It may be noted that the fuselage is probably smaller in cross sectional area than any fuselage previously designed, and the pilots have had to be specially "fitted" to the machine. The area of maximum section is only just over half that of the "S.4."

In order to clear the cockpit of exhaust fumes and hot air during flight, it has been found necessary to fit fresh-air ducts.

Oil cooling is effected by passing the oil along both sides of the fuselage in contact with the skin through specially-constructed oil coolers.

As regards the floats, these are comparatively long and are constructed of Duralumin, being anodically treated to resist sea-water corrosion. They are connected to the fuselage by two pairs of V struts.

Of the engine, the special racing Napier "Lion," particulars are given elsewhere, so we need only add here that the airscrews for the "S.5" have been designed and manufactured by the Fairey Aviation Co., of Hayes.

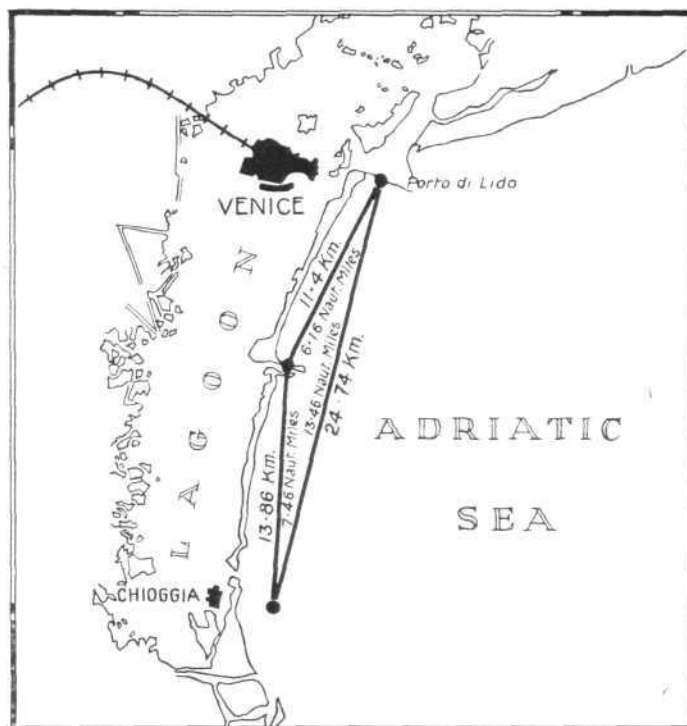
The Supermarine Aviation Works, Ltd., will be represented in Italy, by Commander James Bird, Chairman and Managing Director, Mr. R. J. Mitchell, Director and Chief Engineer, and the Supermarine crew will consist of Mr. A. Powell, Mr. B. Pickett, Mr. G. Broome, Mr. B. Tozer, Mr. G. Pearson, Mr. H. Grimes, and Mr. B. B. Brown.

It is anticipated that the machines will leave England in two consignments, one on or about August 16, and the other on or about August 26.

The Napier Engine

The engine which has been selected for both the Supermarine-Napier S.5 and the Gloster-Napier 4 is designed and manufactured by D. Napier & Son, Ltd., of London, and is a development of the famous Napier "Lion" which has given such remarkable service in the British Air Force and in machines operating on commercial air lines and in air forces in all parts of the world. It has twelve cylinders, fan or "broad-arrow" shape, in three blocks of four cylinders each, and, of course, is water-cooled.

Considerable improvements and developments, of course, have been made in the type to be used in these racing machines. It is obviously necessary to keep secret particulars of this engine and, therefore, it is not possible to divulge the nature



Sketch map of the 1927 Schneider Trophy course.

of the alterations, but one important feature is noticeable, as it can be seen that the frontal area has been considerably reduced, making this engine even more compact than the already small standard "Lion," and lessening resistance with the decided advantage of increase in speed.

In designing this racing engine, everything has been done to reduce head resistance, so that it fits into a fuselage of the smallest possible size and lends itself to efficient cowling, without in any way sacrificing power or adding to the weight, and the frontal area is considerably less than other types, whilst it still retains all the excellent characteristics of the short three-row design.

Great attention has also been paid to its installation in the aeroplanes, and it will be seen that the cylinder-block covers have been so designed as to be part of the actual cowling.

When it was known that the Napier engines in the 1925 Schneider trophy machines were developing 700 h.p., it was thought, in some quarters, that the most had been achieved with this remarkable design, but continuous development, experiments and testing has resulted in the 1927 Napier racing engine—an engine which further proves Napier's wonderful genius for leading the way.

The amazing power which this tiny engine develops must also remain a mystery for the present, but when it is possible to give figures of performance, it can be promised that the power output obtained from an engine of such compact size will be unique.

Another advance which has been made in this engine is that it has been fitted with a special reduction gear. This enables a slower-running airscrew to be used which gives a higher efficiency.

The Team

Under Air Vice-Marshal Scarlett at Venice will be six R.A.F. officers and 27 R.A.F. mechanics, and also a number of "civil" mechanics from the different firms.

The flying personnel includes:—Squad.-Ldr. L. H. Slatter, O.B.E., D.S.C., D.F.C.; Flight-Lieut. S. M. Kinkhead, D.S.O., D.S.C., D.F.C.; Flight-Lieut. S. N. Webster, A.F.C.; Flight-Lieut. O. E. Worsley, and F./O. H. M. Schofield. The Technical Officer will be F./O. T. H. Moon.

AMSTERDAM-BATAVIA AND BACK IN 27 DAYS

Some Details of Mr. Van Lear Black's Flight

THE big flight from Amsterdam to Batavia (Dutch East Indies) and back accomplished by Mr. Van Lear Black—the well-known American Newspaper-King—in a K.L.M. Fokker air liner piloted by Mr. Geysendorffer and Mr. Scholte, has already been reported from time to time in *FLIGHT*. We think, however, the following account of the flight as a whole may be of interest to our readers, as it contains certain information not previously recorded.

Since March 1, prior to the Batavia flight, Mr. Van Lear Black made numerous flights—some of 1,000 miles non-stop—over Europe, amounting in all to some 15,625 miles. With the exception of one or two flights between London and Rotterdam, all these trips were accomplished on the same machine, the K.L.M. Fokker F.VIIA, H-NADP, fitted with a 440 h.p. Gnome-Rhône "Jupiter IV."

H-NADP is a normal service plane of the K.L.M., and flew on the regular air lines when not in use by Mr. v. Lear

two at Baghdad owing to slight trouble with the lubricating system—and after about 86 actual flying hours, H-NADP landed safely at Tjililitan aerodrome, Batavia. Thus, the outward journey was completed, with almost clockwork regularity, in 13 flying days.

It is interesting to compare this trip with the flight of Mr. van den Hoop, who in 1924 accomplished the same aerial journey in a Fokker F.VII with Rolls-Royce "Eagle" engine. He took 22 days, or 127½ flying hours. The American world flyers, in 1924, took about as much time to fly from Bangkok to Budapest as Mr. Van Lear Black took for his complete trip to Batavia.

Again, the organisation of Mr. v. d. Hoop's and the American flight took over a year and presented many difficulties, whereas, as mentioned above, all arrangements for Mr. v. Lear Black's trip were completed in a fortnight.

At the end of this article will be found the daily log of the



AMSTERDAM TO BATAVIA AND BACK IN 27 DAYS: The Fokker type F.VIIa monoplane, fitted with a 440 h.p. Gnome-Rhône "Jupiter IV" engine in which Mr. Van Lear Black made his flight to the Dutch Indies. His machine was the "K.L.M." airliner H-NADP, which normally operates on the K.L.M. passenger and mail services.

Black, but its fuel capacity was slightly increased so as to be able to cover non-stop flights of about 1,250 miles.

The plan for the Amsterdam-Batavia and back flight was only made on May 30, and the flight had to be completed before July 23, as Mr. v. Lear Black had to be back in Amsterdam by that time. By June 15 the K.L.M. staff had completed the whole organisation of the flight.

H-NADP was taken out of the regular service on June 13, and brought over to the K.L.M. shops at Rotterdam to be fitted with a freshly-overhauled engine. Also, a supplementary oil cooler was installed, whilst a set of new Palladium wheels and tyres was fitted. Finally, every part of the plane was inspected, greased, etc., and the interior of the cabin furnished with four easy chairs and a small table instead of the regular outfit.

A selection of spare parts and tools was stowed in one of the luggage compartments and after a test flight on the evening of the 13th H-NADP started for London on the 14th to fetch Mr. van Lear Black and some of his friends, who wanted to see him off from Amsterdam at 8.30 a.m. on the 15th.

After a journey of 16 days—of which one was spent at Constantinople where they were held up by the authorities, and

out and home trips, from which it will be seen that the longest non-stop runs were between Baghdad-Bunder Abbas (nearly 1,000 miles), Karachi-Allahabad (930 miles) on the outward flight, and Allahabad-Karachi, including a detour (1,054 miles) on the homeward flight.

On the first mentioned leg the flying time was 9 hrs., whilst during the whole journey to Batavia an average speed of 107.3 miles an hour was maintained, an excellent performance, especially bearing in mind that the machine was a quite normal commercial machine, weighing just over 7,900 lb. with five people on board.

Mr. v. Lear Black wished to stay a week in Java and decided to return to Amsterdam on July 6, so in the meanwhile Mr. Geysendorffer took the machine over to the Military aerodrome at Bandoeng to have it overhauled.

The return flight followed nearly the same route. At Bangkok H-NADP was delayed for one day as it was not allowed to land at Rangoon, owing to the fact that races were being held on the flying ground. Between Calcutta and Allahabad an average speed of 128 miles per hour was reached, and on the next day, flying non-stop to Karachi, the flown distance of 1,700 km. (1,054 miles) was covered in 8½ hrs. On the outward as well as on the homeward journey they experienced

some difficulty from the West Monsoon, which however did not interfere with the regularity. It was a different thing, however, with the very severe duststorms which H-NADP encountered after Bunder Abbas. Mr. van Lear Black had to wait at Basra for four days until the gale, causing tremendous duststorms, had gone off. On July 20, after a landing at Baghdad, where important telegrams were waiting for the crew, Aleppo was reached; on the 21st the flight was continued to Constantinople, whilst on the 22nd, the longest day trip was made, viz., as far as Nürnberg, a distance of 2,200 km. (1,364 miles), in 13½ hrs.

On July 23, and according to schedule, H-NADP landed at

Schiphol aerodrome at 16.48 hrs., where Mr. v. Lear Black and his companions were accorded a magnificent reception, in which several Dutch Ministers, Sir Sefton Brancker, and the U.S. Ambassador took part. H.M. the Queen of Holland conferred upon them the Cross of Knighthood of the Order of Oranje Nassau.

The complete homeward journey was completed in 91 hrs. 22 mins. actual flying time, a distance of about 9,600 miles being covered at an average speed of 98.6 m.p.h. The total distance covered, out and home, was 18,707.5 miles, and the total flying time, 183 hrs. 27 mins. (or at an average speed of 101.7 m.p.h.).

The daily log of the out and home flights is as follows:

OUTWARD (13 DAYS).

		Distance (Miles).	Actual Flying Time (Hrs.)
June 15	.. Amsterdam-Budapest	837*	7.34
" 16	.. Budapest-Constantinople	925	6.55
" 18	.. Constantinople-Aleppo	663.5	6.13
" 19	.. Aleppo-Baghdad	496	4.55
" 22	.. Baghdad-Bunder Abbas	986	8.55
" 23	.. Bunder Abbas-Karachi	731.5	7.20
" 24	.. Karachi-Allahabad	930	8.45
" 25	.. Allahabad-Calcutta	477.5	4.50
" 26	.. Calcutta-Rangoon	837	7.40
" 27	.. Rangoon-Bangkok	490	4.40
" 28	.. Bangkok-Singora	536	5.30
" 29	.. Singora-Singapore	465	5.35
" 30	.. Singapore-Muntok	310	3.25
" 30	.. Muntok-Batavia	434	4.10

Total 9,118.5 86.27

* Indirect.

(14 DAYS).

		Distance (Miles).	Flying Time (Hrs.)
July 6	.. Batavia-Medan	930	9.05
" 7	.. Medan-Singora	428*	4.30
" 8	.. Singora-Bangkok	536	5
" 10	.. Bangkok-Rangoon	490	5.45
" 11	.. Rangoon-Calcutta	837	7.55
" 12	.. Calcutta-Allahabad	477.5	4.50
" 13	.. Allahabad-Karachi	1,054*	8.35
" 14	.. Karachi-Bunder Abbas	731.5	8.10
" 15	.. Bunder Abbas-Bunder Dilam	731.5*	8.35
" 16	.. Bunder Dilam-Basra	124	2.00
" 20	.. Basra-Baghdad	328.5	3.50
" 20	.. Baghdad-Aleppo	496	5.10
" 21	.. Aleppo-Constantinople	663.5	7.00
" 22	.. Constantinople-Budapest	925	8.50
" 22	.. Budapest-Nürnberg	458.5	4.15
" 23	.. Nürnberg-Amsterdam	378	4.20

Total 9,589 97

AIR DEFENCE EXERCISES

In last week's issue of *FLIGHT*, Maj. F. A. de V. Robertson's report on the Air Defence Exercises, which opened on July 24, concluded with the happenings up to Thursday, July 28. The final operations, covering the remaining period for Friday, July 29, are given below in the summary received from the Air Ministry.

Summary of Operations 16.00 hours, July 28, to 07.00 hours, July 29

1. *General*.—Three other raids took place yesterday evening beyond those already reported. Two reached and bombed their objectives, but both have suffered severe casualties, whilst the third reached its objective but could not attack owing to its being hidden by low clouds.

2. *Details of Raids*.—No. 7.—Two flights of No. 11 Squadron crossed the coast at Shoreham at 13,000 ft. at 14.35 hrs. It was attacked continuously by five machines of No. 32 Squadron between Croydon and Tunbridge Wells between 14.45 and 15.08 hrs. at heights varying between 14,000 and 16,000 ft. The defending aircraft attacks were at first made by single machines or machines in pairs, and the umpire assessed the casualties as two defending aircraft and one bomber shot down. The remaining bombers reached their objective, Chelsea, at 15.05 hrs., but were attacked by a flight of No. 41 Squadron over Hounslow on their return journey at 13,000 ft. at 15.25 hrs. One machine of this raid became detached and was attacked by a Siskin machine of No. 41 Squadron over Kingston at 15.30 hrs.

No. 8 *Raid*.—Two flights of No. 12 Squadron crossed the coast at Havant at 13,000 ft. at 15.18 hrs. By dint of coming down to 2,000 ft. they managed to elude No. 41 Squadron which had been sent up to intercept them, and reached their objective, Hillingdon House, at 15.45 hrs. At this height they would have been subjected to such heavy anti-aircraft and machine gun fire from the ground in war, that it is almost certain that they would not have reached their objectives.

No. 9 *Raid*.—Two machines of No. 99 Squadron crossed the coast at the Naze flying at 3,000 ft. at 15.30 hrs. No. 111 Squadron sent up to patrol, saw nothing of them and landed at 17.12 hrs. A flight of No. 41 Squadron encountered them 5 miles north of Gravesend at 16.45 hrs., but could not attack as it had been up so long that its petrol was running short, necessitating landing to replenish it. A second flight, however, of No. 41 Squadron attacked them over Gravesend at 3,000 ft. at 16.75 hrs. The bombers were unable to attack their objective owing to its being hidden by low clouds.

Night Raids

3. *Weather*.—The low clouds which had formed yesterday evening cleared at sunset and the weather remaining good until 02.00 hrs., when it deteriorated in the south-west owing to the advent of a southerly wind.

4. *Night Raids*.—During the night a total of 22 raids was carried out by machines of Nos. 7, 9, 58 and 99 Squadrons. Fourteen of these raids passed through the sector lit by searchlights and were very successfully attacked by patrols of Nos. 3 and 23 Squadrons. This success was mainly due to the excellent co-operation between the First Searchlight Battalion, R.E., and the fighting squadrons. The remaining eight raids came from the north and east, crossing the coast between Aldeburgh and the Thames Estuary. From 11.30 hrs. till 01.45 hrs., Northolt Aerodrome was continuously attacked from heights varying between 6,000 to 10,000 ft. Four machines raiding from Worthy Down were unable to return to their aerodrome owing to low mist having formed over it after their departure. They landed at other aerodromes.

Summary of Operations from 10.00 to 17.00 hrs., July 29.

1. *Weather*.—Peculiar weather conditions have prevailed throughout the day. In the south-west low clouds and rain have prevented some raids from leaving their aerodromes. Over London were two layers of clouds from 3,000 to 5,000 ft. and from 7,000 to 7,500 ft., with a clear gap between the layers and a sunlit sky above the top layer. Raiders who approached above the clouds had great difficulty in finding their target, whilst those below would have suffered severely from anti-aircraft fire. The cloud layers also rendered the work of the defence fighting patrols difficult.

2. *Raids*.—Six raids were attempted of which three were successful. Two were intercepted and suffered heavy casualties from fighter patrols, and one was forced to give up the raid on account of bad weather.

3. *Précis of Raids. General*.—During the course of the exercises 105 raids have been attempted. The full measure of success obtained both in attacking and in the defence can only be arrived at after all reports from the various umpires have been sifted and thoroughly investigated.

Today's Raids.—(a) One flight of No. 12 Squadron crossed the coast at Newhaven at 15,000 ft. at 08.15 hrs., got through to Hillingdon House at 15,000 ft. at 08.45 hrs. It was not seen from the camera obscura and presumably did not succeed in bombing its objective. Two flights of No. 32

(Concluded on page 569)

PRIVATE FLYING



A Section of **FLIGHT** in the Interests of the Private Owner, Owner-Pilot, and Club Member

PRIVATE FLYING FIELD EQUIPMENT

By "GWAMP"

[OUR contributor, "Gwamp," is a private owner, who, according to our first list, owns G-EBP], an Avro 548, and he uses two fields for his aerodrome at week-ends. Whilst appreciating flying, he has discovered a few disadvantages, for which he gives below a few practical and simple remedies.—ED.]

The private aeroplane owner, who makes practical use of his machine at week-ends and on summer evenings, will find himself flying frequently to the same places. Often his destination will not be a recognised aerodrome, but a con-

venient field which he may own or have permission to land on. Fortunately the law imposes no restrictions on the use of such fields as private aerodromes, provided that they are not used for commercial purposes. The owners are therefore at liberty to make what dispositions they like for their own convenience or that of such visitors as Mr. Motthews, Miss MacAvion or Captain FitzWidgeon.

Perhaps the first addition to be suggested is a "wind sausage." It is surprising how little smoke is to be seen in country districts on a Saturday afternoon. And as private fields are not always of ideal shape or proportions, reliable

make the top bearing round the pivot, to reach past D, E, then to form one of the ring stays E, A, and finally to make the ring itself and finish at A.

The other end of the wire should run from the nut to the lower pivot, bearing then past D, E to make the second ring stay, ending at B. The third ring support can be added afterwards starting at D and ending at C.

Care should be taken that the turns forming the pivot bearing will turn freely on the nail. It is a good thing to

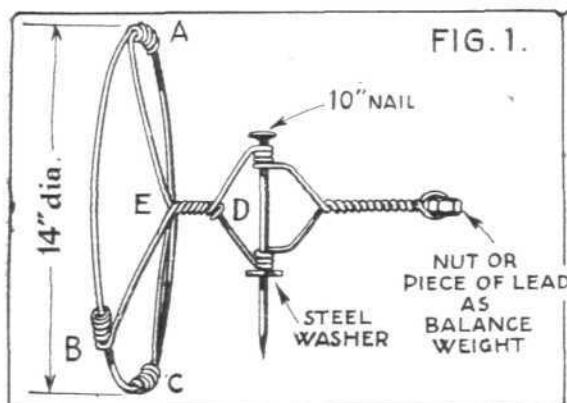


FIG. 1.

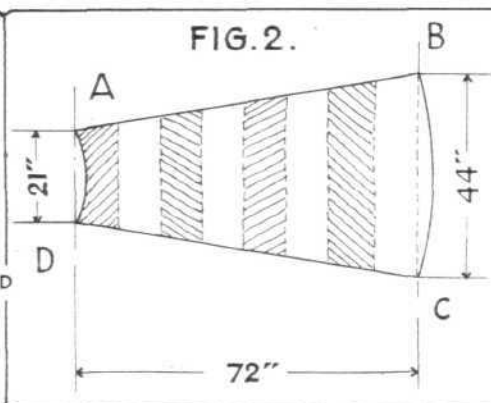


FIG. 2.

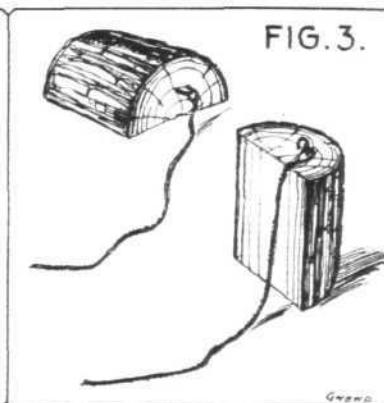


FIG. 3.

indication of wind conditions is often welcome to the amateur pilot. It is easy to make one at the cost of a few shillings. The following method (Fig. 1) has been used by the author with quite satisfactory results.

The framework is made of galvanised wire such as is used in single strands for cattle fences. It is worth while to use some design such as that illustrated to ensure that the sausage fills easily and doesn't get wrapped round the staff. The diagram is self-explanatory.

In making this, it is best to start with the nut or counterpoise weight and to leave one end of the wire long enough to

wind them round a stair-rod or something slightly thicker than the nail.

The sausage itself should be made of fairly light linen material cut out to this shape (Fig. 2).

Fair fingers can usually be found to make this in stripes of different-coloured stuffs which undoubtedly improves the æsthetic effect and, incidentally, the visibility.

When the side AB has been sewn to the side CD, the end BC should be bound firmly to the wire ring. The small end should, of course, be left open.

The sausage should be mounted on a pole at least 15 ft.

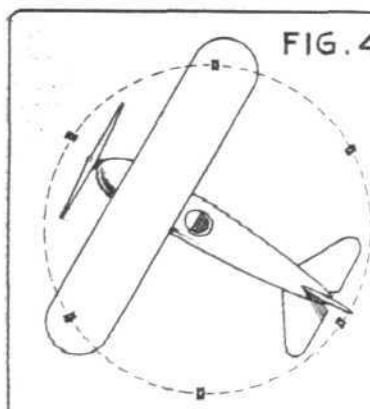


FIG. 4.

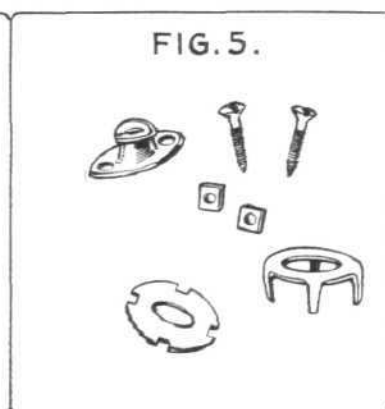


FIG. 5.

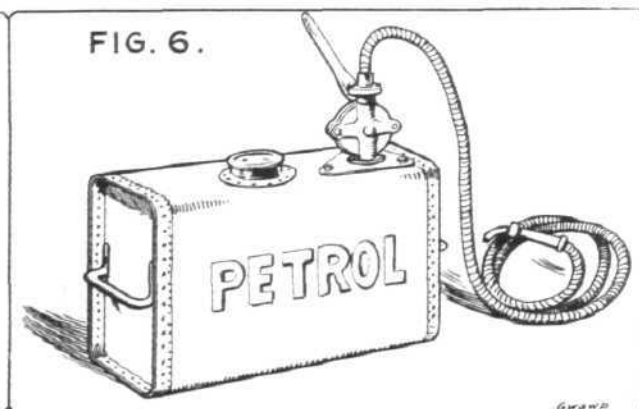


FIG. 6.

high and 50 yards from any high trees or buildings which could "blanket" it. The nail should be driven exactly vertically into the top of the pole, a washer being inserted below the lower bearing, so that the frame can revolve perfectly freely.

Excellent portable chocks can now be bought, but owing to their light weight something stronger and heavier is really more practical for flying field use. A simple way to make very useful chocks (Fig. 3) is to split a short log of firewood and drive a staple into each half to attach the cord. A pair

Chocks

Excellent portable chocks can now be bought, but owing to their light weight something stronger and heavier is really more practical for flying field use. A simple way to make very useful chocks (Fig. 3) is to split a short log of firewood and drive a staple into each half to attach the cord. A pair

of these will always prove useful, and they can safely be left under the hedge between visits.

Pegs

Undoubtedly the best pegs for tying down a machine are the well-known screw pickets of barbed-wire days. A few of these can usually be picked up cheaply in any country town. The author has found, however, that much time can be saved by having a set of strong permanent pegs driven into the ground at the point where the machine is usually left. If about six of these are arranged in a circle (Fig. 4) the heads being kept close to the ground, the aeroplane can be taxied to the centre and secured to any three pegs, according to the direction of the wind. This makes it possible to tie the machine perfectly firmly in a few moments. And as one lies in bed and hears a wind howling round the chimneys, it is very comforting to think that one's treasured means of transport is adequately moored.

Coverings

Where an aeroplane is to be left out of doors regardless of weather, the question of cock-pit and engine covers becomes of vital importance. Properly maintained rigging and control wires will not suffer, and the doped parts of the machine will stand any amount of exposure. But engine and instruments must be perfectly protected if unnecessary risks are to be avoided. This means that covers must be somewhat more substantial than the light Willesden canvas usually provided.

The best material for this purpose is called "dressed tarpaulin," and can be obtained from any wholesale merchant of motor hood and cover fabrics. It is much superior to the rubber-proofed materials used for touring car hoods, since it is stronger and does not suffer from contact with oil as it is itself oil-dressed. It can be bought 50 ins. wide, so that it is easy to make covers any size. As it does not fray the edges can be left as cut.

The best way to secure it to the machine is with turn-buttons (Fig. 5) which can be fixed with small wood-screws or bolts and nuts. The correct type of screw is called a "raised head" and is a cross between the "round head" and "countersunk" types. It is very easy to secure the eye-

lets in the tarpaulin, and as screws, bolts, turn-buttons, eye-lets, etc., can all be bought nickel-plated, it is possible to make a very neat looking job.

Filling Up

One of the most annoying features of most aeroplanes is the difficulty of filling them with petrol. This process is apt to waste a lot of the private owner's time. Usually it is necessary at a private flying field to transport numerous cans to the machine and there wield them, perched in a precarious position on the fuselage or even on steps, while grasping a funnel and a chamois leather. Obviously, something like the Bowser wheeled tanks used on Service aerodromes would be much more convenient but unfortunately firms charge about £50 for such an outfit. It is possible, however, to fit up something almost as useful for a much smaller cost. Various firms selling Government disposal stores can supply excellent galvanised tanks very cheaply, suitable for petrol. It is also possible to buy for about 25s. a small semi-rotary pump which will deliver about 3 gallons a minute. The most expensive item is usually the petrol-proof hose which costs between 2s. and 3s. per foot.

With these components, a filling apparatus can be made up which will quickly repay its cost in time and trouble saved. The author's set, which cost about £5, comprises a 12-gallon tank, a pump with $\frac{3}{4}$ -in. bore, and 12 ft. of hose, with nozzle. The tank can easily be filled at the nearest bulk supply, and taken to the flying field in the back of a car. Fig. 6 indicates the appearance of the pump and tank, which has not yet been fitted with wheels.

Summary

All those who have experienced air travel appreciate at once its advantage in speed over other means. But private owners will no doubt have found that these advantages are minimised unless careful ground organization is provided to make arrival and departure as convenient and quick as possible. Lucky indeed are those who can say to a well-trained chauffeur mechanic, "Smith, have her filled up, and warmed up by a quarter-to-seven. I'm dining in London."

These notes are written in the hope that they may contain something of assistance even to these fortunate folk, as well as to those of us who are our own aerodrome staff.

LIGHT 'PLANE CLUBS

London Aeroplane Club, Stag Lane, Edgware. Sec., H. E. Perrin, 3, Clifford Street, London, W.1.

Bristol and Wessex Aeroplane Club, Yate, Gloucester. Sec., C. S. Clarke, Channel Road, Walton Park, Clevedon, Somerset.

Hampshire Aeroplane Club, Hamble, Southampton. Sec., Maj. Ross White, Hamble, Southampton.

Lancashire Aero Club, Woodford, Lanes. Sec., C. J. Wood, Oakfield, Dukinfield, near Manchester.

Midland Aero Club, Castle Bromwich, Birmingham. Sec., Maj. Gilbert Dennison, 22, Villa Road, Handsworth, Birmingham.

Newcastle-upon-Tyne Aero Club, Cramlington, Northumberland. Sec., A. H. Bell, c/o The Club.

Norfolk and Norwich Aero Club, Mousehold, Norwich. Sec., H. O. Bennett, 5, Opie Street, Norwich.

The Scottish Aero Club Movement, 101, St. Vincent Street, Glasgow. Sec., Harry W. Smith.

Suffolk Aeroplane Club, Ipswich.—Secretary, Courtney N. Prentice, "Hazel Dell," Stowmarket, Suffolk.

Yorkshire Aeroplane Club, Sherburn-in-Elmet, Yorks. Sec., J. F. Barnes, 39, Swan Arcade, Bradford.

BRISTOL & WESSEX AEROPLANE CLUB

TOTAL flying time for week ending August 6, 21 hours 40 mins. Dual with Mr. Bartlett:—Miss H. Pitman, Miss O. Miles, Mrs. R. Stanton, Messrs. Hugh Clarke, R. S. Clarke, C. H. Brewer, Downes Shaw, Ashley Hall, C. Macauley, E. Pitman, Shaw, Tratman.

Solo:—Eric Hopper, 1 hour 25 mins.; C. F. Uwins, 5 mins.

Passenger Flights with Mr. Bartlett: V. Denies, 5 mins.; J. M. Paul, 10 mins.; with Mr. Shaw:—Miss S. Saunders, 15 mins.; Mrs. Shaw, 10 mins.

The Club has been fortunate in obtaining Mr. A. W. Webb as ground engineer, who was Mr. W. L. Hope's chief mechanic in this year's King's Cup Race.

HAMPSHIRE AEROPLANE CLUB

WEEK ending Sunday, July 31.—Flying times: Total, 18 hours. Dual, 9 hours 20 mins. Solo, 6 hours 55 mins. Joy rides, 35 mins. Tests, 1 hour 10 mins.

The following had dual:—Mrs. Aitken Dick, Lt. Mandeville, R.N., Master Waite, Messrs. Evans, Andreae, Williamson, Dobson, Brewster, Wells, MacCracken, Stamford, Fagan, Boilean, Snowden, Baynes, Whittle, Southcliffe, Cripps and Everett.

The soloists were:—Don J. de la Cierva, Messrs. Shepherd, Dobson, Fagan, Parker, Symmons and A. N. Other.

The following had joy rides:—Major Ross White, The Hon. H. R. Grosvenor, Dr. Keller Frost, Mr. Lovat, Mr. Alexander and Miss Myers.

There was no flying on Wednesday and Saturday owing to gales. Mr. Dobson made an excellent first solo flight on Friday. In spite of the gale on Saturday, Ft.-Lt. Thomson with the Secretary, Major Ross White, flew over Calshot where the Southampton Yacht Club were holding their Annual Regatta, and saluted their friends of the Club.

WEEK ending Sunday, August 7. Flying times: Total, 23 hours. Dual, 12 hours 25 mins. Solo, 8 hours 10 mins. Joy rides, 1 hour 35 mins. Tests, 50 mins.

The following had instruction:—Miss Horne, Lt. Graham, R.N., Lt.-Com. Woodhouse, Commander Hunt, Capt. Molyneux, Messrs. Evans, Brewster, Wells, Stanford, Dunning, Mellor, Snowden, Williamson, Boilean, Dobson, Crook, Everett, Courtney.

The soloists were:—F/O. Southey, Lt. Graham, R.N., Don J. de la Cierva, The Hon. H. R. Grosvenor, Messrs. Sanders Clark, Mellor, Dobson, Fry, Symmons, Parker and Nicholson.

The following had joy rides:—Mrs. Thomson, Mrs. Brewster, Mrs. Crook, Misses Clappen, Davis and Taylor, Messrs. Bailey, Shepherd, Lovat and Bathurst.

Mr. A. R. Mellor made an excellent first solo flight on Wednesday, having first been collected by air from Cowes.

The Club was open on Monday, 1st (Bank Holiday), but no flying was possible, owing to rain. The Club will be closed for eight days from Monday, August 8, to Monday, August 15, to give the staff a well-earned rest. There was no flying on Friday, 5th, as the chief instructor had to go to London for his half-yearly medical examination.

On Thursday, the Club was visited by Dr. Murton on his "Moth." He "dropped in" for lunch at the Club on his way from Bournemouth to Dover, Capt. Olley, of Imperial Airways, descended on us in a Vickers' "Vulcan," on Sunday. He had with him as passengers, Miss Enid Stamp Taylor, Mr. Leslie Henson and Mr. and Mrs. Jack Hylton, all on their way to Deauville.

LANCASHIRE AERO CLUB

TOTAL for the week ending August 6, 45 hrs. 5 mins. Composed of tests, 1 hr. 25 mins.; joy rides, 5 hrs. 45 mins.; dual, 13 hrs. 40 mins.; solo, 22 hrs. 15 mins. Dual with Mr. Brown, Messrs. Jowett, Anderson, Fisher, Stonex, Meades, Browning, Wilkinson, Forshaw, Watson, Musgrave, Allott, Williams, Shires, Harber, Gattrell, Hartley, Kinsley, Wade, Agar, C., Miss Berlien. Dual with Mr. Cantrill, Messrs. Fisher, Stonex, Allott, Harber, Meades, Heyes, Wade. Joy rides with Mr. Brown, Messrs. Treadgold, Redfern, Fisher, Miss Mills, Dyson, D. F., Hubbard, Bromost, Kershaw, Mills. With Mr. Twemlow, Mr. Ridley. With Mr. Cantrill, Mrs. Ainsworth, Mr. Mills. With Mr. Goodfellow, Mr. Mills. With Mr. Scholes, Miss Jackson, Mr. Brook. With Mr. Costa, Mr. Brito. With Mr. Leeming, Mr. Pilling.

Solo by Messrs. Anderson, Goodfellow, Caldecott, Twemlow, Ward, Musgrave, Miss Berlien, Torrees, Dobson, Shires, Michelson, Costa, Rowley, Hardy, Meades, Agar, Crossthwaite, Davison, Williams, Chapman, Gattrell, Nelson, Leeming, Harber.

For part of the week only one machine was serviceable. The week started

with R.R. and M.Q. in use, on Thursday M.Q. became unserviceable and by Saturday L.V. was brought into use to replace M.Q., a splendid piece of work on which the ground staff deserve congratulations. There have been three first solos this week:—Messrs. Meades, Harber and Shires. Four pupils have passed their "A" Licence tests. Extensive work will have to be done on M.Q. and this will be out of service for some time. O.K. is also undergoing complete overhaul and will not be flying for a week or two. Numerous cross-country trips were made, notably by Messrs. Anderson and Dobson—the former visiting Chorlton and the latter Baguley (unintentionally).

MIDLAND AERO CLUB LIMITED

Report for the week ending August 6.—The total flying time was 7 hours 2 minutes.

The following members were given dual instruction by Mr. McDonough:—Capt. J. E. Brewin, R. D. Bednell, G. Robson, N. Crane, R. Cazalet.

Mr. Cazalet was launched solo on Saturday and put up a most excellent show. Members of the Club are very proud of the distinction achieved by their Chief Instructor Mr. McDonough, in putting up such an excellent performance in the King's Cup Race by obtaining second place and further by his success in obtaining first position in the Pelham Handicap.

YORKSHIRE AEROPLANE CLUB

REPORT for week ending July 30. Total flying time, 34 hrs. 55 mins. Dual with Mr. Beck, 20 hrs. 35 mins.; dual with Mr. Coles, 25 mins.; solo, 13 hrs. 55 mins.

The following took instruction with Mr. Beck:—Miss Woodhead, Miss Watson, Messrs. Hirst, Ling, Brown, Crouther, Milburn, Hiley, Ellison, Ten Bos, Micklethwait, Leatham, Birch, Lax, Hy. Leatham, Wood, Brackenbury, Ambler, Thomson.

Trouble All the Way

MR. DENNIS ROOKE and his "Moth" still seem to be caught in the arms of misfortune on his flight to India. He was forced to land in the Lybian desert owing to engine trouble, and for three days he was without food or water whilst repairing his machine. He used his khaki shorts to provide packing for the pistons, and was eventually able to reach Aboukir. Between Karachi and Cawnpore he was forced down many times, then landed on a mudflat after leaving Cawnpore, where he was obliged to abandon his personal kit to lighten his machine after four hours' work. At the time, too, he was severely suffering from an abscess in his ear. His latest mishap is a collision with a tree whilst taking off at Gaya on resuming the course to Calcutta. He was taken to Gaya hospital, but is not seriously hurt.

Will-O'-The-Wisps

It is becoming increasingly difficult to follow the movements of some of our most active private owners. They are like will-o'-the-wisps. They are in evidence at an air meeting one day, and the next you learn that they are returning from a long tour on the Continent. Mrs. Elliott-Lynn has just returned from a 3,000-mile flight over France, Germany, Holland, Poland, and elsewhere. In hazy weather she was unable to land her "Avian" at Croydon, but successfully landed at Bromley. She had come from Breslau after attending an International Conference on Women's Athletics. The petrol ran out, and she endeavoured to get some at Brussels, but apparently you cannot get petrol in the early morning at Brussels, so the course was altered to Ostend. The Channel crossing was made at a height of only 200 ft. owing to foggy weather. When Mrs. Elliott-Lynn landed at Bromley, an Excise officer was one of the first people to approach her, and made an examination of all her luggage.

A Busman's Holiday

MR. S. ST. BARBE, the colleague of Capt. Sparks, of the London Aeroplane Club, which has closed for the summer holidays, set off on an aerial tour with Mr. McClure, a member of the Club, in the latter's own "Moth," G-EBRU. They left Stag Lane on August 5 with the intention of covering 15 countries in 14 days. At Burgos, Spain, they were detained owing to the flying authorisation, which had been applied for at the Spanish Embassy in London, not having arrived. Finally, they escaped their guards through the pretence of testing the engine. The Pyrenees were crossed through clouds and the flight round Europe resumed through France.

A New Tour Begun

ONE of our new private owners who figured in last week's list is Lieut. L. G. Richardson, R.N., who belongs to the Fleet Air Arm, and is stationed on H.M.S. *Furious*, the seaplane carrier. He owns "Moth," G-EBPO, registered on May 31 this year. With his brother, Mr. E. W. A. Richardson, he is spending his summer leave touring by air to Malta. On August 2, they arrived at Paris from Lympne, and went on to Avignon the next day, landing in the evening. On

The following took dual with Mr. Coles:—Mr. Fitton. The following flew solo:—Capt. Milburn, Messrs. Thomson, Brackenbury, Coles, Wilson, Leach, Clapham, Lax, Mann, Birch, Wood.

During the week two fair Americans, Miss Ashmore and Miss Nicholls, landed on a tour round England, and being used to larger machines were very much intrigued by a "Moth." Miss Nicholls is the only flying-boat pilot of her sex and we wish she had brought it with her as we have seen more water than land where the Aerodrome should be.

REPORT for the week ending August 6. The total time flown during the week amounted to 40 hrs. 20 mins. consisting of 19 hrs. 55 mins. dual with Mr. Beck, 3 hrs. dual with Mr. Coles, 10 hrs. 25 mins. solo, 6 hrs. 50 mins. cross-country, and 10 mins. tests.

The following members received instruction by Mr. Beck:—General Atcherley, Miss Woodhead, Miss Watson, Messrs. Hirst, Crouther, Lax, M.B., and R. K., Ellison, Ten Bos, Thomson, Ambler, Lister, Coles, Leatham, Dujardin, Fitton, Milestones, Micklethwait, Milburn and Humphries. Mr. Coles' pupils were:—Miss Woodhead, Miss Watson, Messrs. Dujardin, Stell, Swift and Crouther.

The following flew solo:—Miss Woodhead, Messrs. Atcherley, D. and R. Mann, Wilson, Fielden, Wood, Lax, M.B., Beck, Thomson, Brackenbury, Clapham, Coles, Norway and Milburn.

At last! We have not got a lady member who has accomplished the feat of exploring the ether by herself and returning to the aerodrome with the kite intact: in a word, Miss Woodhead went solo on Monday and put up a splendid performance; of course there were several applicants to accompany the lady, but this was not allowed, as the "Bluebird" has not yet arrived. Our flying hours were pushed up to over 40 this week, and several ladies took joyrides. We expect the hours to increase considerably even above last week's figure when the new machine can be used. Mr. Brackenbury succeeded in flying backwards during the week, but only for a limited distance as he soon regained control. Mr. R. H. Leatham expected to go solo on Saturday, but decided otherwise, as the thirsty crowd of spectators was too large.

August 4, they flew to Pisa, also arriving in the evening, and on the next day they came to Naples via Rome. Malta, the outward destination, was gained on August 6, from Naples.

Still They Come

A NEW light 'plane club has sprung upon the movement, complete with a machine and pilot, with very little preliminary announcement. This is the Nottingham Aero Club whose President is Sir Harold Bowden, Bt., who figures in our latest list of private owners. Sir Albert Ball, J.P., the father of the famous Captain Albert Ball, V.C., is the acting Vice-President; Mr. D. Rushworth, the Chairman; Mr. C. R. Sands, A.C.A., the Hon. Treasurer; and Mr. R. Macpherson, the Hon. Secretary. The Club's pilot is Mr. Bernard Martin, who was a competitor in the King's Cup race, flying the Club's "Moth," which he flew up from Stag Lane to Nottingham a few days before the race. The headquarters of the new Club are at the United Services Club, Nottingham.

Norwich—A Future Air Port?

NORWICH is making a bold effort for aeronautical eminence. It has done wonders for its local club by fine publicity, and now it is uttering claims for its suitability as a future air port by reason of its geographical advantages. In a speech broadcast recently by the Lord Mayor, Mr. C. R. Bignold, he said that the subject of his talk was Norwich, an Air Port. It had a fine aerodrome already, and the county had vast open spaces and also large inland expanses of water, which would undoubtedly lend themselves for seaplane work. Norwich had claims to be almost the nearest important city in a straight line with Brussels, Antwerp, Berlin, and Central Europe. He pointed out the city's asset in possessing such an efficient aircraft firm as Boulton and Paul's, who were playing an immense part in the scientific development of aircraft, and who had been entrusted with the detailed design and manufacture of the frame work of the new airship R 101. Dealing with the flying club that had been formed, he said the present position was this: one machine had been bought, one acquired on loan, one business man had purchased a machine for his own use, and two others were likely to follow his example. In conclusion, the Lord Mayor suggested that the Government should seriously consider the desirability of helping the Norwich Club.

A New School

MR. C. B. HARRIS, A.R.Ae.S., informs us that he has started the Bucks School of Aviation, at Iver Heath, Bucks, which is prepared to train pupils for A and B licences, carry out aerial advertising, photography, survey and joy-riding. Machines can be hired and all types of machines supplied.

Still Striving

THE Tunbridge Wells Flying Club, of which we have previously given preliminary particulars, is holding a local air demonstration near the town shortly for the purpose of attracting local interest and support. The Mayor and other officials may attend.

CAPT. F. L. BARNARD, O.B.E., A.F.C.

It is with profound regret that we have to record the death, as the result of a flying accident on Thursday, July 28, of Capt. F. L. Barnard. Capt. Barnard—one of our most experienced and popular pilots—was carrying out a test flight on the Bristol "Badminton" ("Jupiter VI") biplane, which had been entered for the King's Cup Air Race, at Filton aerodrome, when, according to eyewitnesses, the engine suddenly stopped and the machine crashed to the ground just outside the 'drome from a height of about 200 ft. When a number of people who had been watching the flight arrived in the field where the machine had crashed, the latter was found completely wrecked, with the engine embedded in the ground, and the unfortunate pilot lying in the cockpit beyond human aid.

From evidence at the inquest, which was held on July 29, it appears that when Capt. Barnard's engine failed, he put the machine into normal gliding angle and attempted to land. While manœuvring to do so, the machine lost flying speed and stalled from about 80 ft. Capt. Barnard had already made three other test flights on the machine, trying out different airscrews.

Capt. Barnard's loss to the aviation world is a great one indeed, for he was an exceptional pilot, careful, skilful, and

daring—but daring only when flying alone or testing. He served in the Air Force during the war, and was awarded the Air Force Cross. Following the Armistice he was pilot to No. 24 Communication Squadron, when he carried many distinguished personages to and from the Continent. He then became associated with Instone Air Lines, and later, when Imperial Airways was formed, was their chief pilot. His skill as a pilot was such that he was entrusted with many important aerial missions—the most conspicuous of which was the piloting of the Imperial Airways D.H. "Hercules" air liner, carrying Sir Samuel Hoare, Lady Maud Hoare and party from London to Cairo on the inaugural flight of the Egypt-India service. He also, it will be remembered, took part in previous King's Cup races, being the winner in 1922 and 1925, and flying last year the Bristol "Badminton" in its original form.

Capt. Barnard leaves a widow and young son, to whom, in common with his many, many friends, we offer our deepest sympathy.

[We very much regret that owing to a slip in the "make-up" the above was omitted from last week's issue of *FLIGHT*. Its omission was only noticed when the issue was already in the press, when it was too late to rectify matters.—Ed.]



AIR DEFENCE EXERCISES—(Concluded from p. 565).

Squadron sent up to intercept were unable to see anything of it.

(b) One flight of No. 39 Squadron crossed the coast over Harwich at 08.30 hrs. and was reported over Colchester at 08.45 hrs. It was intercepted by a flight of No. 111 Squadron over Wickford at 15,000 ft. at 09.18 hrs., it was intercepted by a second flight of the same Squadron over Dagenham at 5,000 ft. at 09.26 hrs. Though it arrived over the target at 09.40 hrs. at 10,000 ft. it was not observed from the camera obscura.

(c) Two flights of No. 39 Squadron crossed the coast at Alderburgh at 13,000 ft. at 12.53 hrs. and was reported over Ipswich at 14,000 ft. at 13.37 hrs., it was intercepted by a flight of No. 19 Squadron over Dunmow at 14,500 ft. at 14.00 hrs. It reported that it was unable to bomb its objective, Chelsea, as the target was covered with clouds.

(d) Two flights of No. 12 Squadron crossed the coast west of Portsmouth at 1400 ft. at 14.50 hrs. and after passing over

Petersfield at 15.11 hrs. was recalled on account of thick clouds.

(e) Three flights of No. 11 Squadron crossed the coast at Bognor at 6,000 ft. at 14.25 hrs. and after passing over Petworth at 10,000 ft. at 14.39 hrs. claim to have reached their objective, Hillingdon House, at 15.00 hrs. flying at 17,000 ft. It was not seen or heard by the target umpire.

(f) One flight of No. 99 Squadron crossed the coast at Harwich at 10,600 ft. at 14.40 hrs. It was reported over Great Waltham at 12,000 ft. at 15.19 hrs., over Margaret Rodding at 15.27 hrs. and arrived over its target, Hillingdon House, at 16.16 hrs. It was intercepted and attacked as it was arriving at its objective by eight machines of No. 41 Squadron at a height of 2,500 ft. at 16.15 hrs. It is also believed to have been intercepted on its journey there by No. 29 Squadron.

4. As already announced, the exercises terminated at 17.00 hrs. today.



Up-to-Date

THE Emir Ghazi, Heir Apparent of the King of Iraq, who had been staying in Alexandria for three days, left Cairo by air for Baghdad on August 3.

Golf

THE R.A.F. Officers' G.A. visited Beaconsfield on August 6 and were beaten in a match of singles and four-somes by seven matches to five on the day's play, after winning the singles by five matches to three.

Our Auxiliary Air Force Goes to Camp

ON August 6 the two London A.A. Force squadrons, No. 600 (City of London) Bombing Squadron and No. 601 (County of London) Bombing Squadron, flew to Lympne from Hendon for their annual camp, which will last till August 22. The flight was made in Avro-Lynx training machines and D.H.9a day-bombers. Very bad visibility marked a stage of the flight near Crowborough, and several machines were forced to land. Pilot Officer L. A. Hackett deliberately stalled his Avro on to a tree, thereby accomplishing a "pancake" landing, which smashed his machine but did not harm himself. When landing at Lympne one of the D.H.9a's crashed after avoiding a collision with another machine. No. 603 (City of Edinburgh) Squadron is in camp at Leuchars, the R.A.F. station. No. 605 (County of Warwick) Squadron is in camp at Manston until August 13. No. 602 (City of Glasgow) Squadron completed its camp at Leuchars on July 30.

Good Performances

THE "Hercules" air liner, in which Sir Samuel Hoare was a passenger to India recently, completed 200 hours' flying, during which time the Bristol "Jupiters" gave no trouble of any kind. The starboard engine was taken down and found to be in perfect condition, so the other two engines are continuing in the machine for a further period. Considering that the temperature at Basra in Iraq, where the Imperial

Airways machines are flying, is as high as 127° in the shade, this performance speaks well for the "Jupiters." A "Jupiter" Series IV., built at the Alfa Romeo works, Italy, successfully completed 100 hours non-stop running under official test.

Fatal Air Crash near Casablanca

AN air liner on the Toulouse-Casablanca line, run by the French Latecoère Company, was forced to descend through bad weather recently, between Alicante and Casablanca, and in doing so, it crashed into some trees with terrific force, killing the pilot and all his passengers.

Royal Air Force Flying Accidents

THE Air Ministry regrets to announce that as the result of an accident at Holbeach ranges, Lincoln, to a Gamecock machine of No. 32 (Fighter) Squadron, Kenley, Surrey, on July 20, Pilot Officer Richard Griffith Pace, the pilot and sole occupant of the aircraft, was killed.

As the result of an accident at El Tabbin, on the River Nile, to a D.H.9A machine of No. 47 (Bombing) Squadron, Helwan, Egypt, on July 22, 355883 A.C.1 Harold Kauntze Bacon (previously reported missing) was killed. Flying Officer Francis Stanhope Homersham, D.C.M., M.M., the pilot of the aircraft, was uninjured.

As the result of an accident at Northolt Aerodrome to a Woodcock machine of No. 17 (Fighter) Squadron, Upavon, on July 25, Flying Officer Ian Andrew Anderson, the pilot and sole occupant of the aircraft, was killed.

The Royal Air Force Memorial Fund

THE usual meeting of the Grants Sub-Committee of the Fund was held at Iddesleigh House, on July 28.

Mr. W. S. Field was in the chair, and the other members of the Committee present were Mrs. L. M. K. Pratt-Barlow, O.B.E., Sqdn.-Ldr. Douglas Iron, O.B.E. The committee considered in all 16 cases, and made grants to the amount of £492 8s. 4d. The next meeting was fixed for to-day, August 11, at 2.30 p.m.



Three Times—Unlucky!

THE third official attempt to fly non-stop from England to India has failed. Flight Lieut. C. R. Carr, the famous pilot, with a new observer, Flying Officer E. C. Dearth, took off from Cranwell in the Hawker "Horsley" in comparative secrecy shortly after noon on August 2, and it was hoped that this third attempt would not be made public until it could be announced that England had set up a new world's long distance record. Unfortunately the news that eventually surprised the country reported the crash into the River Danube at Sommerberg, in the district of Aschach, near Linz. Flt. Lt. Carr was only shaken but his companion was rather badly injured, although we are glad to report that he is now progressing favourably. A report stated that both officers only escaped drowning through the casual presence of workmen on the river bank. The observer was rescued in an unconscious condition, suffering internal injuries. Carr was able to supervise the efforts to recover the machine which was badly damaged. He is to be sympathised with for his long reign of bad luck, but also congratulated on his survival of the three great adventures.

The Atlantic Rivalry

A FEVERISH rivalry has suddenly arisen between French and German pilots over the race across the Atlantic from east to west. The French Government has rescinded a recent decision and conceded Capt. Coste the machine in which he has made many long-distance flights. The other French competitors are M. Tarascon and M. Lauthé, the latter being a pilot on the London-Paris airway. M. Drouhin has now settled his difficulties with Mr. Levine, and they immediately enter the field of probable starters with "Miss Columbia." The former is to receive £830 for a year's contract, to be paid in weekly sums of £16. Mr. Levine has also deposited £2,500 in a bank, which is to be paid to the pilot's wife in the event of his death. Mr. Levine also undertakes to pay M. Drouhin 50 per cent. of the profits which may accrue from a success of the flight. The German competitors in the Atlantic race include Herr Koennecke and the Junkers Company has two machines ready to leave at any moment.

One of the Junkers' attempts is said to be partly financed by Mr. Hearst, the American newspaper proprietor. He is contributing £6,600, part of which will be in payment for the right to have one of his own correspondents on board the machine during the flight. The other interested parties are said to be the Norddeutsche Lloyd and the Darmstadt Bank.

The Funeral of Captain F. L. Barnard

CAPTAIN FRANKLYN LESLIE BARNARD, the famous chief pilot of Imperial Airways, who met his death whilst testing the Bristol "Badminton" on July 28, preparatory to entering for the King's Cup Race at Nottingham, was buried at Purley, on August 3. A service was held first at Purley Congregational Church which was attended by relatives, friends, Sir Sefton Brancker, and many other R.A.F. officers, and officers of foreign Air Forces. The coffin was covered with the Union Jack, and the hearse was a blaze of colour from beautiful wreaths. The Rev. A. Pringle conducted the service, and the Rev. Dr. Edes of Redhill, gave an address, eulogising Captain Barnard's splendid record. Captain Barnard's remains had been cremated at Golders Green.

Czechoslovakian Flight to Tokyo

LIEUT.-COL. SKALA, of the Czechoslovak Army, departed from Prague on August 8 for a flight to Tokyo. He intends to fly through Moscow, Kazan, Tomsk, Krasnojarsk, and Mukden.

Long Air Tour in Eastern Europe

THE well-known French pilot, Maj. Weiss, is shortly to carry out a 5,000-mile tour by air through Eastern Europe in about eight days. It will be purely in the interests of aerial propaganda and for the purpose of studying conditions. The route will pass via Prague, or Cracow, the Black Sea, the Sea of Azov, the Volga Valley, Kazan, and Moscow. His companion will be Sergt. B. Assolant. The course will partly follow what may possibly be a future airway between London-Paris-India and Irak.

Junkers Make a New Record

A JUNKERS J33 monoplane, piloted by two Junkers test pilots, Herr Risticz and Herr Edzard, broke the world's duration record set up by Mr. C. Chamberlin and Mr. Bert

Acosta in a Wright-Bellanca monoplane, on April 12-14. They flew over a 60-mile course between Dessau and Leipzig, starting shortly before 6 a.m., on August 3, and landing at 10.11 a.m., on August 5. Their time in the air was 52 hrs. 23 mins. Chamberlin's record over New York was 51 hrs. 11 mins. The German airmen sent off a rocket about 3.30 a.m. which was wrongly assumed to be a signal for landing, and preparations were made accordingly. Actually the signal meant the resumption of the circuits to Leipzig after circling Dessau all night. The completion of the long flight was marked by great joy, the crowd congratulating Professor Junkers and the pilots.

Which is Everything

THE Premier of New South Wales, Mr. Lang, has guaranteed the expenses of Captain Kingsford Smith, Mr. Keith Anderson and Mr. Charles Ulm, for their proposed flight from America to Australia.

Far and Wide

AFTER the Nottingham meeting, Lady Bailey flew across the Irish Sea to the Dublin Horse Show in her "Moth." The passenger seat had been converted to allow for an additional petrol tank. A Dublin report states that at Holyhead she bought a motor-cycle inner tube, inflated it, and carried it in case of falling into the sea.

Compte de la Vaulx's Tour

THE Compte de la Vaulx, President of the Fédération Aéronautique Internationale, has just concluded his air tour round Europe. He flew in 26 different machines, with pilots of seventeen nationalities, and covered 8,500 miles. His average speed was about 83 m.p.h. It is significant of the growth of commercial air lines throughout Europe that he could have completed his tour—with one exception in Portugal—on regular air lines. For certain particular journeys he flew military aircraft.

Capt. Courtney Ready

CAPTAIN F. T. COURTNEY may start on his Atlantic flight at any time now, weather permitting. There has been a delay recently through alterations to the wireless system in his Dornier "Whale" machine.

Bermuda-New York Competition

THE Bermuda Trade Development Board of Bermuda propose to donate a prize of £2,000 for a flight between New York and Bermuda, either way. Atlantic flights which touch Bermuda on the way to New York would be eligible for the prize if other conditions, yet to be stated, were complied with. Factors of safety will count in the competition rather than the feat of being the first to accomplish the flight.

To Deauville by Air

ON August 7 an air service started between London and Deauville. In addition to a seaplane, an aeroplane arrived with twelve passengers on board.

Fairey-Reed Successes

THE Fairey Aviation Co. Ltd. scored two prominent successes in the King's Cup Race, for both Capt. W. L. Hope and Capt. W. J. McDonough, first and second respectively, on a "Moth" and "Widgeon" used Fairey-Reed propellers.

Formidable

THE latest type of U.S. Army bomber, called the "Super-Cyclops," built by the Keystone Aircraft Corporation at Bristol, Pennsylvania, is shortly to be tested. It is equipped with ten machine guns, four of them being installed in a vanishing turret in the fuselage, the position allowing a circular range of fire. There are also bomb racks carrying bombs weighing one ton each. The power is supplied by twin-Packard engines each giving 550 h.p. The full-load weight is about 8 tons. Other types carrying many machine guns and adopted for the U.S. Army are Curtiss, Condon, and Fokker biplanes, each of which hold a crew of six and six machine-guns.

New Bombing Range on East Coast

ACCORDING to a provincial paper an Air Bombing Range may be established at Barmston in Bridlington Bay. Air Ministry representatives have been making an inspection of the area. The Bridlington fishermen have raised minor objections and asked that if the range be proceeded with it should be shifted further south to Witter Hole.

THE ROYAL AIR FORCE

London Gazette, August 2, 1927.

General Duties Branch

Air Vice-Marshal Sir L. B. Vesey, K.B.E., C.B., C.M.G., D.S.O. (Col., temp. Maj.-Gen., Army), is re-seconded for one year's duty with the R.A.F. (Aug. 1): Flight Lt. H. C. Calvey is granted a permanent comm. in this rank (July 1).

The follg. Pilot Officers are promoted to rank of Flying Officer:—W. A. Andrews, J. F. Lawu (April 12); R. Benham, H. J. J. Mumford-Mathews (May 28); H. G. Wisner, P. de C. Festing Smith, E. B. Webb (June 16); Flight Lt. J. A. Glen, D.S.C., is placed on half-pay, Scale B, Aug. 6 to Dec. 31, 1927, inclusive; Pilot Officer D. H. A. C. D. Patton-Bethune takes rank and precedence as if his appointment as Pilot Officer bore date Jan. 16, 1927, immediately following Pilot Officer C. E. N. Turton on the gradation list; reduction takes effect from June 14, 1927; Flying Officer E. V. Culverwell is transferred to Reserve, Class A (Aug. 1); Flight Lt. T. J. West, M.C., relinquishes his short-service commission on account of ill-health and is permitted to retain his rank (April 19). (Substituted for Gazette, May 3, 1927.)

Accountant Branch

The follg. Flying Officers are granted permanent commissions (Aug. 3):—D. F. A. Clarke; F. M. Hall.

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

The follg. are granted commissions in Class A.A. as Pilot Officers on probation:—B. F. Cox (July 18); G. H. Robins (July 19). The follg. Flying Officers are transferred from Class A to Class C:—F. E. Bridges (June 17); B. R. C. Coope (July 30). Flying Officer R. J. Copley is transferred from Class B to Class C (July 30); Flying Officer M. C. Kerr relinquishes his comm. on account of ill-health, and is permitted to retain his rank (Aug. 3). Gazette, June 28, 1927, concerning Flight-Lt. T. J. West, M.C., is cancelled.

Medical Branch

Squadron Leader F. C. Jobson relinquishes his commission on completion of service (Aug. 1).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the R.A.F. are notified:—

General Duties Branch

Wing Commanders: E. R. L. Corballis, D.S.O., O.B.E., to No. 21 Group, H.Q., West Drayton, for Air Staff duties: 1.8.27. E. W. Norton, D.S.C., to No. 58 Sqn., Worthy Down, pending taking over command, instead of to No. 7 Sqn., as previously notified; 28.7.27.

Squadron Leaders: H. M. K. Brown to Record Office, Ruislip; 30.7.27. M. L. Taylor, A.F.C., to No. 29 Sqn., Duxford; 18.7.27.

Flight Lieutenants: J. A. Glen, D.S.C., to R.A.F. Depot, Uxbridge; 28.7.27. G. C. Gardiner, D.F.C., to Air Ministry (D. of T.); 28.7.27. C. F. Horsley, M.C., to No. 12 Sqn., Andover; 6.8.27. L. J. Riordan, A.F.C., to R.A.F. Base, Calshot; 2.8.27. C. D. Pyne, to No. 23 Group, H.Q., Grantham; 2.8.27. G. H. Cock, M.C., to No. 39 Sqn., Spittlegate; 2.8.27. A. T. K. Shipwright, D.F.C., to No. 25 Sqn., Hawkinge; 2.8.27. F. F. Inglis, to No. 1 School of Tech. Training (Apprentices), Halton; 1.8.27.

R.A.F. CADET COLLEGE CRANWELL

Passing-Out Inspection by Sir Samuel Hoare

On July 29, Sir Samuel Hoare made the passing-out inspection of Cadets at the R.A.F. Cadet College, Cranwell. He was attended by Air Commodore F. C. Halahan, Commandant of the College, and Air Vice-Marshal Sir Philip Game, and after the parade, when he was received with an air salute, Sir Samuel visited the workshops and hangars, and inspected a number of aeroplanes.

Following this, he attended the annual prize-giving and presented the various prizes. Sir Samuel said that the Cranwell standard of flying was higher than it had ever been before, and he had found, at the various aerodromes at home and abroad, a strong preference for Cranwell cadets. The Cranwell entries for next term, he remarked further, were in proportion larger than those of either Woolwich or Sandhurst—which showed that the country was beginning to realise the great value of the Air Force.

We give a résumé of the Commandant's report for the term:—

The total strength of the Cadet College was 98, of whom 18 were due to pass out this term.

Bad weather had seriously interfered with the flying this term, but the cadets now due to pass out had averaged 84 hours flying, of which 27 hours had been solo on Service types.

There had been a decided improvement in the application of Flight Cadets to aeronautical engineering, but there were still some Flight Cadets who on joining the College, had practically no knowledge of mathematics and consequently found themselves at a disadvantage.

In history and English the term passing out had worked well, though in some cases insufficient initiative had been shown in the historical exercises.

Great improvement had been shown in sending and receiving the Morse Code. Many of the "I" Term Cadets were already 75 per cent. efficient on passing out standards.

The general progress of cadets in air pilotage was very satisfactory. This had been helped by the re-compilation of the syllabus on a more practical basis, and that there had been no change of instructors.

Approximately 30 hours' instruction in practical navigation in the air had been given to date. All cadets who had been taken for a flight had learnt a great deal more than could be taught in lectures, especially with regard to their general confidence in flying by navigational methods.

The "IV" Term had completed the Armament Syllabus, which included pistols, rifles, and both machine guns. The theoretical knowledge in these weapons was very high, and a good all round standard had been obtained on the ranges.

The discipline had been good and the under-officers and non-commissioned officers had performed their duties in a most satisfactory manner, while the general health of the cadets had been excellent.

Owing to the temporary nature of the buildings of the Cadet College, more reconditioning was required each year to maintain them in a satisfactory state of repair. It was hoped that the work in connection with the building of the new Cadet College would commence in the near future, as the College lost in efficiency in the absence of permanent buildings.

The standard of physical training remained high, but the keenness displayed by cadets in their second year, however, left room for improvement. Regarding skill-at-arms, out of the seven matches played during the season 1926-27, the cadet's team had won two, including that with R.M.A., Woolwich. A fixture had been arranged with the R.M.C., Sandhurst, next season.

The standard of proficiency in skill-at-arms had been high. At the Royal Tournament, 1927, all three of the Cranwell competitors in the Cadets' Class reached the final pools in their respective weapons, the Sabre versus Sabre being won by Flight Cadet G.N.E. Tindal-Carill-Worsley.

In boxing, the two cadets who entered for the annual invitation competitions at the Belsize Boxing Club in March, 1927, gave a very good account of themselves: Flight Cadet J. H. L. Dillon-Trenchard winning the Heavy Weight competition after three good fights. More interest could, however, be taken by cadets as a whole in the subject.

In cricket, only two matches were lost during the season by the First XI out of 18 games played; four matches were drawn and 12 won. For the

first time a match was played against the "Adastrians," who were beaten after their collapse in the second innings. The Second XI had also enjoyed a more successful season than last year, having won six matches and lost one.

Rowing had been continued this year again, and for the first time an inter-Squadron contest had been held, and the winners were allowed to count 5 points towards the Chimay Cup. The College Four had competed at Burton, Derby and Nottingham Regattas.

Regarding Athletics, the standard attained at the inter-Squadron sports was equal to the best results of previous years, although no college records were broken. The first triangular contest between Woolwich, Sandhurst, and Cranwell took place at Queen's Club in May, and was honoured by the presence of His Majesty the King. The result was a win for Sandhurst, Cranwell being second.

In hockey, twelve matches were played during the season, six being lost and six won. The match against Sandhurst being lost and the match against Woolwich being a draw. The Beagles had been out regularly on Mondays and Fridays throughout the season. Hunting conditions had not been good generally, and only three brace of hares were killed, but the season included several brilliant runs and the fields had been large.

All inter-Squadron competitions had taken place this term, except Rugby and Association football, which were decided before Christmas. The Chimay Cup for inter-Squadron games had been won by "A" Squadron, the scores being "A" Squadron, 30 points; "B" Squadron, 10 points.

The Trenchard Cup for Service subjects resulted in a draw, the scores being: each squadron, 32½ points.

"A" Squadron gained the title of champion Squadron-at-Arms, and was therefore entitled to parade on the right of the line, scoring 62½ points to "B" Squadron's 42½ points.

A cup for inter-Squadron shooting had been very generously given to the Cadet College by Sqn.-Leader A. Coningham, the Officer Commanding "B" Squadron.

Awards.—The Sword of Honour, presented to the best all-round Flight Cadet in the Senior Term, to Flight Cadet Under Officer F. R. Worthington. The R. M. Groves Memorial Prize, for the best all-round pilot in the Senior Term, to Flight Cadet J. W. Gillan.

The Abdy Gerrard Fellowes Memorial Prize, for the Flight Cadet obtaining the highest total marks in mathematics and science, was won by Flight Cadet Under Officer F. R. Worthington.

The Prize awarded to the Flight Cadet in the Senior Term obtaining the highest marks in humanistic subjects, to Flight Cadet Under Officer J. A. H. Louden.

The Prize awarded to the Flight Cadet in the Senior Term obtaining the highest marks in aeronautical engineering, to Flight Cadet C. McK. Grierson. The Inter-Squadron Drill (no cup)—"A" Squadron, 157 points to 143 points.

The inter-Squadron P.T.I. Cup, presented by Flight-Lieut. Knocker—"B" Squadron, 173½ points to 167 points.

The inter-squadron Hockey Cup—"A" Squadron, 7 goals to 4 goals.

The inter-Squadron Cross-country Cup—"A" Squadron, 333 points to 492 points.

The inter-Squadron Cricket Cup—"B" Squadron.

The inter-Squadron Swimming Cup—"B" Squadron, 17½ points to 8 points.

The inter-Squadron Skill-at-Arms—"A" Squadron.

The inter-Squadron Boxing Cup—Draw, 2½ points to 2½ points.

The inter-Squadron Tennis Cup—"B" Squadron.

The inter-Squadron Pistol Shooting (no cup)—"A" Squadron, 512 points to 425 points.

Rowing Trophy—"A" Squadron.

The Chimay Cup—"A" Squadron, 30 points to 10 points.

The Trenchard Cup—Draw, 32½ points to 32½ points.

Champion Squadron-at-Arms—"A" Squadron, 62½ points to 42½ points.

SHORT'S ANNUAL SPORTS.

SHORT BROS., the famous seaplane firm of Rochester, held their tenth annual sports meeting in the Paddock, Rochester, on July 30. They have a flourishing sports club which had organised a comprehensive programme. It proved to be the first local athletic meeting to be favoured with dry weather this summer, and under ideal conditions some excellent speeds were made on a fast track. There was a fine attendance for both the spectacular and active aspects of the day. Ample seating accommodation was arranged, the ground was gay with bunting, and the scene presented happy animation. Refreshments were abundant, and there was music by the Rochester and Stroud British Legion Band, conducted personally by the Mayor of Rochester, Councillor A. E. Ward. Clowns gave an exhibition of their old art, two of them causing much fun in the guise of a zebra, well supported by a Chinaman. There were no fewer than 36 events, including four handicaps. The officials were as follows:—Mr. A. E. Short, Mr. H. O. Short, Mr. J. H. Wood, Major S. V. Sippé, D.S.O., Mr. W. P. Kemp, Mr. J. L. Parker, Mr. L. Short, Mr. F. Short, and many others. In the 100 yards open handicap a very fine race was witnessed. There were competitors in it from Queen's Park Harriers, Royal College of Science, City of Rochester A.C., and Old Brompton A.C. Mr. R. W. Bradley (C. of R.) won by a foot, and only inches separated the second and third. The time was 10 secs.

The 100 yards closed handicap for the L.O.S. perpetual challenge cup was won by W. C. E. Spencer, the scratch man, who just struggled through by inches. The time was 10½ secs. The Aero challenge cup for elementary schoolboys was won by R. Castell, the 100 yards taking him 12½ secs. He won easily by four yards. The 220 yards race for the Rolls-Royce challenge cup was won by J. Thompson by 2 ft. in 27½ secs. This was a closed handicap for boys. "Maintenance" beat the holders, the "Bus Shop," in the tug-of-war for the staff challenge cup by two straight pulls. In the 220 yards closed handicap for the Gnosspelius challenge cup, the holder, J. T. Pateman, was beaten by W. C. E. Spencer by two yards. Pateman, the scratch man, won the half-mile for the Wood challenge cup by seven yards.

The 100 yards hurdle race for the Lancaster Parker challenge cup was won by the holder, L. Stedman, by inches in a splendid race. His time was 16½ secs. One of the ladies collapsed in a ladies' race but soon recovered. The "Engineers" were first and the "Bus Shop" second in the one mile inter-shop relay race for staff challenge cup. The holders were the "Fitters," who retired when their half-miler fell. The Aero challenge cup for girls was won by J. Clare. She won comfortably by 3 yards in the 100 yards race. The Victor Ludorem medal was won by J. T. Pateman, who obtained an aggregate of nine points as against seven of W. C. E. Spencer. This is the third year in succession in which Pateman has secured the medal. At the close of the events, Mrs. S. Short distributed the handsome and numerous prizes and was herself the recipient of a lovely bouquet of pink and white carnations, presented by little Miss Low. Mr. Oswald Short, expressed thanks on behalf of Mrs. Short for the kind reception given to his mother. He also thanked the Rev. W. Parker for the use of the Paddock, and added appreciation of the work of all the officials. The Mayor was also thanked for his presence and the conducting of the band.

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IN PARLIAMENT

Passenger Air Services

SIR R. THOMAS asked how many regular aerial passenger services are now in operation wholly or principally within the British Empire or wholly or principally British-owned in other countries; and on what routes do they operate in both cases?

SIR PHILIP SASSOON: There are 15 British-owned passenger air services in regular operation upon the following routes:—

Europe: London-Paris; London-Paris-Basle-Zurich; London-Brussels-Cologne; London-Ostend; London-Le Touquet; Southampton-Guernsey.

Australia: Perth-Derby; Charleville-Camooweal; Cloncurry-Normanton; Adelaide-Cootamundra; Broken Hill-Mildura; Melbourne-Hay.

Canada: Sioux Lookout-Red Lake; Haileybury-Roslyn Gold Fields.

Middle East: Cairo-Basra.

Lieut.-Commander Kenworthy asked the Secretary of State for Air whether permission has now been received from the Persian Government for British aeroplanes to fly over Persian territory between Cairo and Karachi; whether the Cairo to Baghdad route is in operation; how often the aeroplanes fly; how many flights have been made since the route commenced; and what number of passengers and weight of mails has been carried?

SIR P. SASSOON: The answer to the first part of the question is in the negative. As regards the second, third and fourth parts of the question, a regular fortnightly service in each direction between Cairo and Basrah, via Baghdad, came in operation on December 27, 1926, and on April 13 last was augmented to a regular weekly service in each direction. The total number of flights performed since the inauguration of the service has been 46, all of which have been completed regularly to schedule. As regards the last part of the question, I am informed that the number of passengers and weight of

mails carried on the stages in which the route is organised by Imperial Airways was as follows, to June 30 last:—

	Passengers.	Mails. lbs.
Cairo-Gaza	57	518
Gaza-Baghdad	44	6,110
Baghdad-Basra	71	1,461
Basra-Baghdad	95	1,651
Baghdad-Gaza	74	6,268
Gaza-Cairo	70	5,987

Fleet Air Arm

SIR F. SYKES asked the number of pilots qualified and fit for flying duties in sea-going aircraft, and the proportion of these who hold permanent Royal Air Force commissions, hold short-service commissions, and are attached or seconded officers of other services, respectively?

SIR S. HOARE: The number of officers at present employed as pilots in Fleet Air Arm flights is 115, of whom 25 hold permanent commissions, 12 short-service commissions, and 78 are attached to the Royal Air Force from the Royal Navy and Royal Marines. It would not be in the public interest to give information regarding the total numbers of officers trained for particular employments.

Qualified Pilots

SIR F. SYKES asked the numbers of pilots in State-supported flying clubs, and the proportion who have joined Royal Air Force auxiliary units?

SIR S. HOARE: The number of qualified pilots in the subsidised flying clubs on June 30 was 143; information in regard to the exact number who have joined the Reserve or the Auxiliary Air Force cannot be given without a detailed examination of their names.

SIR F. SYKES asked the numbers of pilots, qualified and fit for flying duties, in the Royal Air Force Reserve, the Royal Air Force Special Reserve, the Territorial Air Force and State-supported flying clubs, respectively.

SIR S. HOARE: Royal Air Force Reserve, 744 qualified pilots; Royal Air Force Special Reserve, none as yet (nine under instruction); Auxiliary Air Force, 43; subsidised flying clubs, 143.

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PUBLICATIONS RECEIVED

The Air Pilot Monthly Supplement. No. 34. August, 1927. —The Air Ministry, Kingsway, London, W.C.2.

Dominion of Canada. Department of National Defence: Report on Civil Aviation and Civil Operations by the Royal Canadian Air Force for the Year 1926.—Department of National Defence, Ottawa, Canada. Price 20 cents.

National Institute for the Blind Annual Report, 1926-1927.

—National Institute for the Blind, 224-6-8, Great Portland Street, London, W.1.

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AERONAUTICAL PATENT SPECIFICATIONS

(Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.)

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Published August 11, 1927

- 1,047. E. GARUFFA. Two-stroke i.c. engines. (274,141.)
- 6,789. R. NUTTALL. Method of and means for raising, sustaining, and propelling aircraft. (249,131.)
- 6,837. C. K. FAIREY. Aeroplanes and aircraft having folding wings. (274,151.)
- 9,222. J. DE LA CIERVA. Undercarriage or landing-gear. (274,167.)
- 9,231. CRANKLESS ENGINES, LTD., and A. G. M. MICHELL. Interconversion of reciprocating and rotary motion. (274,168.)
- 29,792. A. G. CALABI. Device for releasing parachute and pilot simultaneously. (269,846.)
- 29,793. A. G. CALABI. Device for facilitating spreading of parachutes. (272,164.)

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